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Country Market Sectoral Survey

NIGERIA

A Survey of U.S.
Business Opportunities



U.S. Department of Commerce
Domestic and International Business
Administration
Bureau of International Commerce

International Marketing Information Series

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NIGERIA

A Survey of U.S. Business Opportunities



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PREFACE

This Survey describes the Nigerian economy in terms of its business opportunities for U.S. firms. The Overview (Chapter 1) summarizes both the promise and the pitfalls of marketing in Nigeria and offers some guidance to the American business executive. The individual chapters that follow describe sector structure and growth, identify Nigerian clientele and their needs, assess the competition that American firms face, and outline any special marketing considerations that apply.

This market research was performed in Nigeria by a four-member Commerce Department Survey Team with the cooperation of the Federal Military Government of Nigeria and with the assistance of the U.S. Foreign Service—Department of State, the U.S. Agency for International Development (USAID), the United States Information Service, the Federal Aviation Administration—Department of Transportation, and the Foreign Agricultural Service—Department of Agriculture. The Survey Team members, from the Market Research Division and Africa Division, Office of International Marketing, Bureau of International Commerce, were Richard Loughlin, Marlene McKinley, Philip Michellini and Gertrude Oppolzer.

From April through July 1975, the Commerce Survey Team interviewed hundreds of Nigerian officials and businessmen. Survey Team members visited offices and installations in 9 of Nigeria's 12 State capitals and in other cities around the country. Throughout Nigeria business and government officers were extremely helpful and cooperative, and their assistance is gratefully acknowledged. It is not possible to name all those—both Nigerian and foreign—whose contributions made the various sector chapters possible. However, the assistance of two professionals in the Federal Office of Statistics was particularly important to the Survey: Mr. B.A. Ukoh, Chief Statistician—Foreign Trade, and Mr. V. Nwosu, Chief Statistician—Production.

This Survey also relies heavily on Nigeria's *Third National Development Plan (1975-80)*, a comprehensive statement of economic and social service goals for the country. Most project descriptions appearing in the *Third Plan* were formulated 12-18 months before its formal release in March 1975. Project costs were based on 1973 and 1974 price levels which have since escalated significantly.

The Commerce Survey Team often was able to obtain updated project information from the executing agencies and firms and from the Nigerian press, or to estimate new values and dimensions based on informed trade source opinions. However, no overall adjustment formula was applied to the whole *Third Plan*. Thus, some of the figures in this Survey agree with Nigerian equivalents in the Plan document, while others diverge by varying degrees.

Every effort has been made to insure the validity of other Survey data as well, and to bring it up to date as of publication. However, Nigeria is changing fast, and descriptive information—particularly on hotels, taxi fares, immunization requirements—should be read with this in mind.

The Nigerian currency is the Naira (₦) which is divided into 100 Kobo. One Naira equals US\$1.645 (since July 1975); 1975 data and Third Plan amounts are converted at that rate. Values from earlier years are converted at rates shown in table footnotes.

The Nigerian fiscal year runs from April 1 to March 31. Both calendar year and fiscal year data are shown in this report; fiscal years will appear as "1975/76," except in tables, where they are identified by footnotes.

The Department of Commerce welcomes comments on the usefulness of this Survey and suggestions that will make future reports of this type more responsive to your business needs. Send your remarks to the Director, Market Research Division (DIBA) U.S. Department of Commerce, Washington, D.C. 20230.

Chapter 1

BLACK AFRICA'S PRIME MARKET: AN OVERVIEW

Spectacular Growth

With nearly a third as many people as the United States Nigeria is the most populous country in Black Africa.

It is also the wealthiest, with annual oil revenues of some \$7.5 billion available for underwriting massive infrastructure, industrial and agricultural development programs. (Based on the 1975-76 Federal budget estimates; converted from Naira at ₦1 = \$1.645.) And although only a fifth of all Nigerians are estimated to have progressed from barter to the money economy so far, the proportion is growing fast, and consumer appetites and spending power are staying well ahead of the supply of goods.

Since 1970, when the Nigerian Civil War ended and oil production began in earnest, the country's economic growth has been phenomenal. Many economic indicators had more than doubled by 1974, as table 1.1 illustrates; exports actually sextupled.

Such rapid growth is not without problems, however, and Nigeria's leapfrogging development has produced many. For example, while import and export volumes have grown dramatically, port and airport capacities have remained almost constant. Demand for electric power is increasing faster than the distribution system can handle without frequent service interruptions. And the pace of road construction is far behind that of new vehicle registrations.

Nigeria is, in effect, a shortage economy, and this is reflected in inflation estimated by some observers to have run at a 25-30% annual rate during 1975—despite price controls on such heavily consumed items as bread, gasoline, beer and soft drinks.

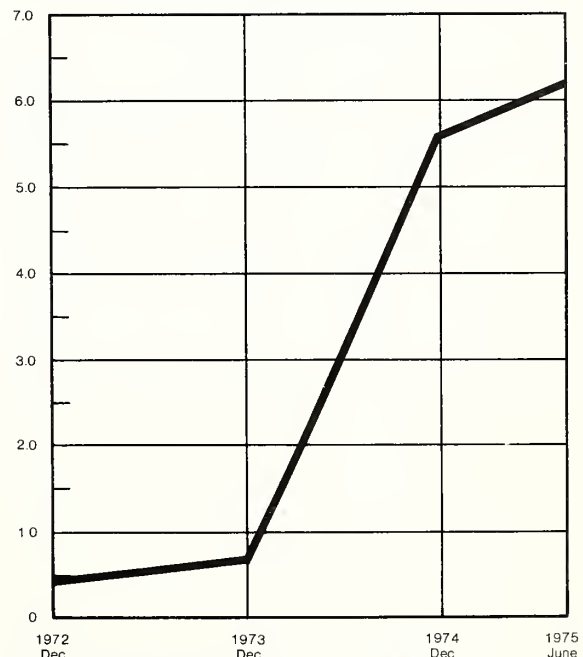
Spending Potential

Nigeria, unlike most developing countries, can finance its development needs without relying on foreign capital. This makes Nigeria a vastly more dynamic and lucrative market than those which must depend on supplier credits and international loans to pay the foreign exchange costs of needed equipment and services. One Nigerian Government corporation boggled an American supplier by insisting on paying cash for a recent \$10 million shipment.

This spending power has important implications for American competitors in the Nigerian market. First, it means Nigerians can follow their tendency to go first class. Nigerians are very conscious of their country's wealth; they want its airports, offices, highways, and hotels to reflect its prosperity. Second, Nigerian financial independence virtually wipes out any competitive advantage to third-country firms stemming from their ability to offer soft credit terms. Competition for Nigerian business will be between the American and third-country *suppliers* rather than between their respective national export banks.

So Nigeria is not the typical developing country, but it does not fit the popular image of the OPEC member State either. The smaller or more sparsely populated OPEC States can have the luxury of a more deliberate pace of development spending; some can afford to limit production to conserve oil resources for the future, to shore up prices, or exert political leverage. But for Nigeria, petroleum-financed development is imperative. Most observers predict that the

FIGURE 1.1—Foreign exchange reserves
(in billions of U.S. dollars)¹



¹Converted from Naira at following exchange rates: 1972, 73: ₦1 = \$1.52; 1974: ₦1 = \$1.62; 1975: ₦1 = \$1.645

Source: International Monetary Fund

MAP 1.1

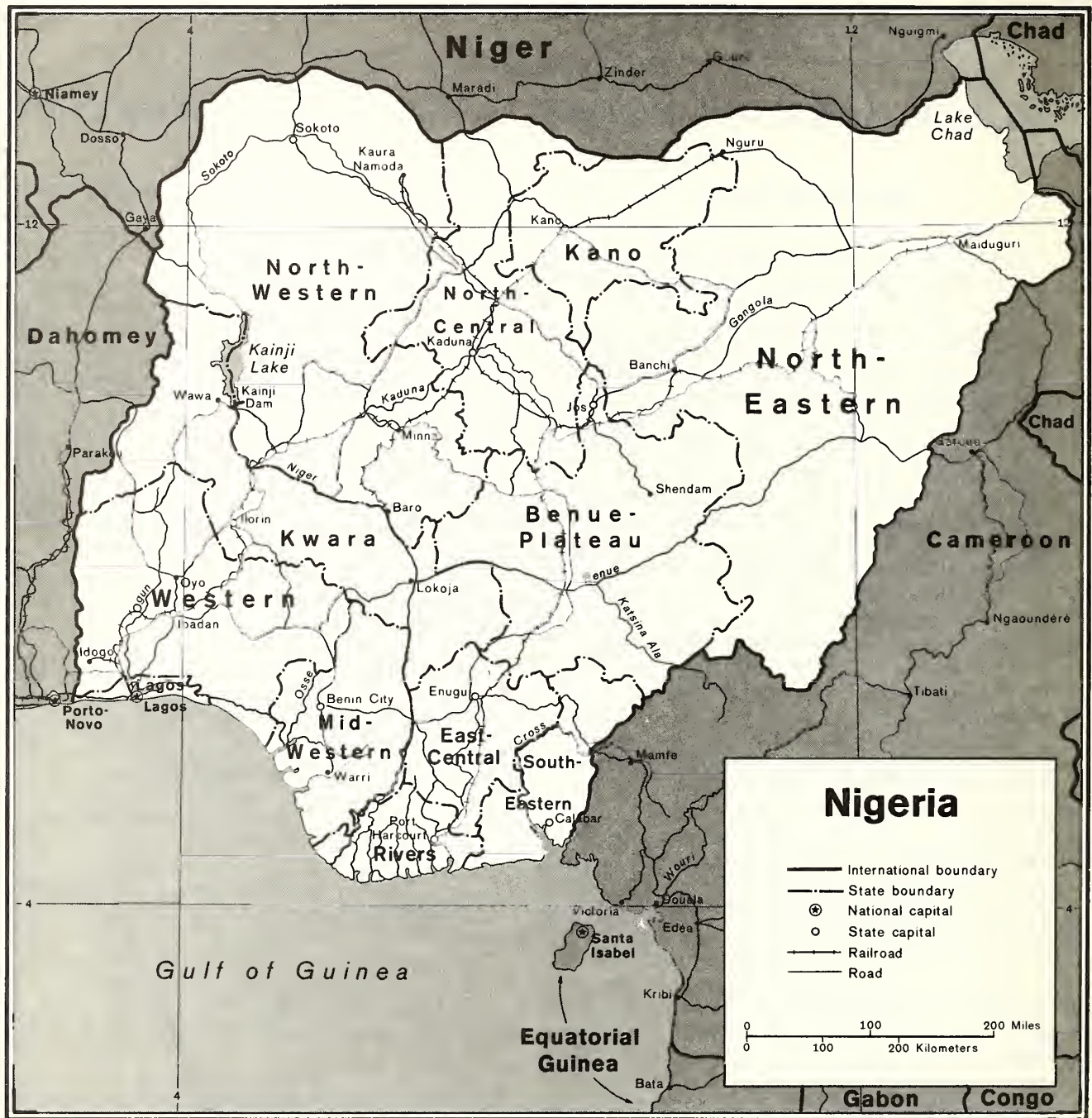
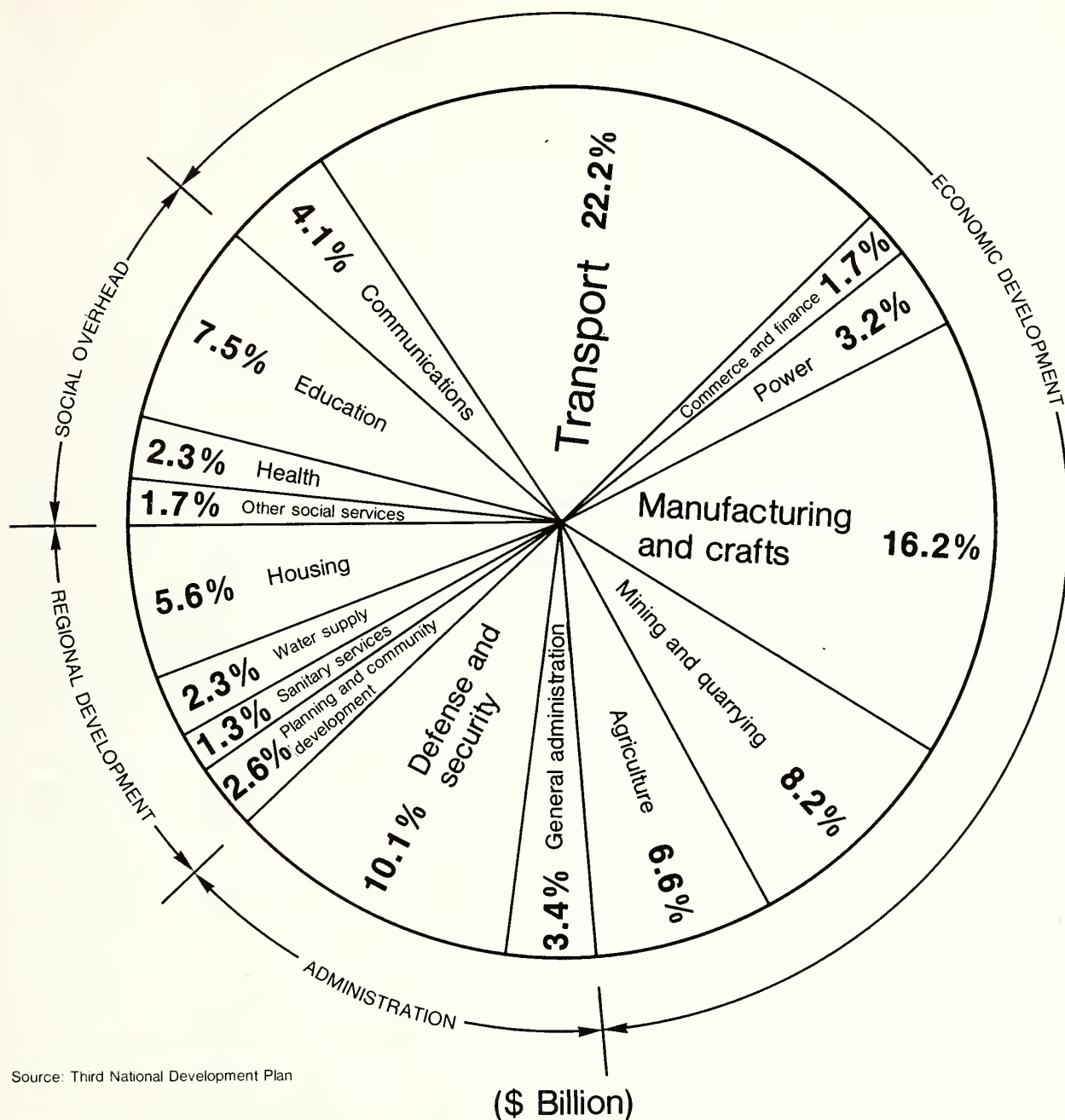


FIGURE 1.2—Public spending priorities under Third National Development Plan



Source: Third National Development Plan

Nigerian Government would not artificially limit oil production if it might threaten economic progress.

So far, however, Nigeria appears to be a long way from the point at which revenue shortfall might jeopardize advancement. Since 1973, revenues have increased even faster than imports. By April 1975, Nigeria's foreign exchange reserves were about \$6 billion, compared with an annual import bill of about \$3 billion. It is unlikely that spending power will prove a limiting factor.

Third Plan

A Note of Optimism

The *Third National Development Plan* is necessarily the centerpiece of any assessment of the Nigerian market. It encompasses both public and private sector capital spending for industrial plant, social overhead, and commercial facilities. Its execution will set the pace of Nigerian economic activity throughout the 1975-80 period.

Table 1.1.—Selected Nigerian economic indicators, 1970 and 1974

	1970	1974	4-year growth	Annual average
Gross domestic product ¹ (\$ billions)	8.6	24.4	285%	30.0%
Money supply ² (\$ millions)	986.0	1,989.0	202%	19.2%
Exports (\$ billions)	1.4	9.3	644%	60.5%
Imports (\$ billions)	1.2	2.8	233%	23.5%
Electricity consumption (millions of kilowatt-hours)	1.1	2.4	218%	21.5%
Motor vehicle population	83,955	220,000	262%	27.2%

1. For the Nigerian fiscal year beginning April 1. All values converted at ₦1 = U.S. \$1.62, the 1974 rate, to discount appreciation of the Naira against the dollar.

2. Circulating currency plus demand deposits. Levels at December 31.

Sources: Central Bank of Nigeria and Federal Office of Statistics, Lagos.

Third Plan priorities will influence most government activities as well. Officials consider these priorities in processing new company, registrations and in approving expatriate quotas.

Total Third Plan expenditures are usually quoted as ₦30 billion, or roughly \$50 billion. Allowances for delay are built in to this figure; actually, the sum of the individual project price tags (called "nominal" amounts) in the Third Plan is 50% higher—about \$75 billion. Some Nigerians and foreign economists are skeptical that even the lower amount will be spent; others note that the Third Plan was costed in 1973 and 1974 and has been made conservative by the rate of inflation since then. What performance can realistically be expected against planned objectives is discussed more thoroughly on the next page. The values and priorities analyzed here are in terms of "nominal" Third Plan allocations—those based on aggregates of individual project costs. These are the values that count for the U.S. firm seeking specific orders and contracts.

Figure 1.2 shows that projects classified under the economic development account for two-thirds of government capital allocations. Among the social overhead and regional development spending categories, health, education, water supply, and housing—all requiring substantial foreign inputs of equipment and materials—account for another 18% of total spending.

The estimated breakdown of private sector investments under the Third Plan is shown in table 1.3. These estimates are much less detailed than the public spending plans drafted by officials in the operating government departments. Nor are private sector expenditures classified into the same categories as those for the public sector, although an approximate comparison is made in table 1.4.

Much of the private sector investment will take the form of participation in joint ventures with the State and Federal Governments. In mining, for example, foreign private interests will participate jointly with the Nigerian National Oil Corporation and the Nigerian Mining Corporation in most projects. Nigerian State Governments are partners in many of the manufacturing

ventures included in the Third Plan.

Transportation.—Nigerian planners have recognized that the country's acute transportation problems are perhaps the greatest single infrastructure deficiency frustrating economic development. Highway and port capacity, unlike teachers and technicians, cannot be temporarily imported. Thus, more than one fifth of all Third Plan public outlays (\$12 billion) is programmed for transportation improvements—more than for any other purpose.

Nigeria's highway system gets the greatest emphasis, since it can provide more internal distribution capacity sooner than rail, aviation, or inland water transport. The Federal and State Governments together will undertake more than \$7 billion in highway construction, with most of the activity scheduled in the earlier half of the Third Plan period. Nigerian distributors of American-made road construction machinery can't get equipment fast enough; the market is ripe for new suppliers.

Port development is an area in which actual expenditures may substantially exceed the \$530 million earmarked in the Third Plan. With almost 400 vessels waiting to berth at Lagos as of November 1975, port congestion looms as the most severe transportation bottleneck threatening development progress. Nigerian authorities are considering the most advanced and innovative solutions that hold any promise for early relief, and can be expected to trade money for time to obtain significant improvements quickly.

Manufacturing.—Manufacturing is the next most important category of Third Plan investments, commanding 16% of public spending allotments (\$8.7 billion) and 23% of private sector capital (\$4.9 billion). A major emphasis is strengthening the relatively underdeveloped intermediate goods industry to provide more of the basic materials the country will need for sustained economic growth: steel, cement, building products, chemicals, and so forth. The most expensive projects are an integrated iron and steel mill complex, a petrochemical plant, two natural gas liquefaction plants, and at least two refineries; together, these

account for two-thirds of all public investments in manufacturing. Other important product areas, each slated for investment in the order of half a billion dollars, are fertilizers and pesticides, pulp and paper products, and sugar. Roughly \$400 million is allotted to cement, lime and plaster production.

The remaining government participation in manufacturing, as well as most private manufacturing investment, is widely distributed among food products, consumer goods, hardware, glass, wood products, etc.

Mining and Quarrying.—Mining activity reflected in the Third Plan is heavily weighted toward petroleum. (Because petroleum is so important to Nigeria's economy it is treated in this *Survey* as a sector apart from other mining: Chapters 4 and 5, respectively.) Out of a total public mining budget of \$4.4 billion, \$3.2 billion is appropriated for oil exportation and production and almost \$1 billion for marketing. Private mining investment estimated at nearly \$2 billion also will be mostly for petroleum activities. When the \$118 million coal development figure is added, it appears that fossil fuel extraction will consume 97% of all allocations to the mining sector.

But geological survey activity and other minerals development are sleepers. The Nigerian Government's capital budget for 1975/76 fiscal year allots 28% more to geological survey than the Third Plan does. Original plans for developing potential metals resources are thought to have been even more conservative, although higher spending rates will probably not be reflected until the 1976/77 fiscal year. Actual outlays over the 5-year Third Plan period could well be a multiple of the \$127 million originally programmed for the two activities.

Education.—Few factors will have as great an impact on Nigeria's long-term development prospects as its success in achieving Universal Primary Education (UPE) and providing commensurate opportunities for secondary and higher education. The foundation of the \$4.1 billion Third Plan educational program is Nigeria's effort to increase elementary school enrollment from about 5 million in 1974 to 11.5 million by 1980. The UPE undertaking is expected to require well over \$800 million for new classroom capacity and primary teacher training during the the Third Plan period.

The best prospects for usage of American educational equipment and systems, however, probably lie in the \$414 million higher education program. Four new universities will be established, and existing ones will be substantially expanded in an effort to boost total enrollment to 53,000 by 1980.

Agriculture.—Less than half of Nigeria's arable land is cultivated, and the country, once self-reliant in food, now requires increasing imports of many basic food commodities. To reverse this trend, the Federal and State Governments plan agricultural development projects valued at \$3.6 billion; private investment is estimated in the Third Plan at \$2.2 billion. Three-fourths of these capital resources will be devoted to crops, with the remainder divided among livestock, forestry, and fisheries in that order.

Because most farming is now done on private plots averaging about 3 acres, the Government will increase fertilizer, pesticide, and seed distribution through extension services. But Nigerian agricultural experts expect the most dramatic production improvements to result from large-scale agricultural development projects of the sort in which U.S. companies excel.

Table 1.2.—Public sector allocations in the Third Plan
(in millions of U.S. dollars)¹

	Nominal 5-year total	1976 ²	1977	1978	1979	1980
Agriculture	3,621	616	682	729	777	870
Mining and quarrying	4,409	980	1,052	1,071	698	609
Manufacturing	8,745	1,442	2,101	2,189	1,590	1,406
Power	1,769	299	290	301	370	508
Commerce and finance	920	263	296	238	69	55
Transport	12,013	2,285	2,770	2,838	2,270	1,850
Communications	2,202	293	474	555	532	348
Education	4,053	605	767	854	912	915
Health	1,250	260	322	321	191	157
Other social services	926	133	162	191	209	232
Water supply	1,530	166	237	309	377	442
Sewerage, drainage, refuse	705	70	106	141	176	211
Housing	3,023	316	463	600	747	896
Planning and community development	1,560	169	246	308	382	455
Defense, general administration	7,320	924	1,280	1,488	1,718	1,910
Total	54,046	8,819	11,248	12,133	11,033	10,811

1. Converted from Naira at ₦1 = \$1.645.

2. Years ending March 31.

Source: *Third National Development Plan*.

Table 1.3.—Private sector capital spending estimates in the Third Plan
(in millions of U.S. dollars)¹

	Nominal 5-year total	1976 ²	1977	1978	1979	1980
Agriculture	2, 181	276	408	472	497	528
Mining and quarrying	1, 974	350	375	336	439	474
Manufacturing and crafts	4, 935	403	676	923	1, 244	1, 689
Building and construction	6, 054	582	867	1, 128	1, 525	1, 951
Distribution	2, 491	329	411	494	576	681
Road transport	1, 480	165	247	329	362	378
Other services	2, 056	298	345	401	466	546
Total	21, 171	2, 403	3, 329	4, 083	5, 108	6, 248

1. Converted from Naira at ₦ 1 = \$1.645.

2. Years ending March 31.

Source: *Third National Development Plan*.

Construction.—One of the country's most profitable industries, construction is entirely a private sector activity in Nigeria. The estimate of more than \$6 billion for Third Plan additions to construction capacity represents a tremendous potential for sales of machinery, vehicles, and tools to the Nigerian construction industry.

Other Priorities.—The narrower wedges on the accompanying pie-charts should not be overlooked; percentages aside, the sums to be spent on communications apparatus, power generation and distribution equipment, and medical apparatus and supplies are quite substantial. Also, some of the agencies with programs in the \$3 billion-and-under range have better track records on implementation than entities with several times as much money to spend. This again raises the question of just how much of planned development will in fact be accomplished.

A Note of Realism

The \$75 billion panoply of projects that makes up Nigeria's *Third National Development Plan* represents the Government's thorough assessment of the country's immediate needs. The most optimistic of Nigerian planners, however, recognize that \$75 billion worth of development cannot take place in Nigeria by March 31, 1980—the end of the Third Plan period. In an effort to arrive at a more realistic target against which achievement might be measured, and to net out Federal-State transfers in some project costing, an "effective" capital estimate was made for each of the broader spending categories. Effective public and private sector investments are compared with the "nominal" figures in table 1.4.

Reductions to effective figures do not imply some Third Plan projects have priority over others; they are made across-the-board for each sector, recognizing that some projects may not get underway or may be delayed, incurring less cost during the Third Plan period than if they had begun as scheduled.

The estimation of effective investment levels is based more on experience than on conjecture. Although no precise formulas are available, the following factors are those most often cited as limiting implementation.

Executive Capacity.—The dilemma most frequently mentioned by Nigerian officials interviewed for this *Survey*—and one noted throughout the Third Plan itself—is that of insufficient numbers of technically qualified executives. From evaluation of feasibility studies and determination of design criteria to actual contract administration, implementation of the Third Plan will require more executive capacity than Nigeria has yet developed. Foreign advisors and consultants can assist in evaluating proposals and defining alternatives, but most decisions must be made by Nigerians themselves.

Available Data.—Some projects have been long delayed because managers lacked the data essential for making sound decisions. Nigerian plans for an integrated iron and steel complex predate even the *Second National Development Plan*, but important design questions hinge on such factors as the extent and composition of Nigerian iron ore and the suitability of Nigerian coal for coking—data still being developed.

Political Inputs.—In Nigeria, as in the United States, economics is sometimes superseded by political considerations. "Whether" rarely presents a problem, but "where" is often a delicate issue in Nigeria with 12 States competing for new, job-creating industry. An example is the second of two new refineries to be built under the Third Plan. The installation is to be at Kaduna, the capital of North-Central State, some 600 miles from the oil producing areas of the Niger Delta. "This is obviously a political choice," writes Alan Rake in the February 1975 issue of *African Development*. "Crude, which is heavier and bulkier than petrol will have to be piped north, and then residual fuel oil and spirits, which are traditionally exported, will have to be sent back south."

This decision reflects a long-standing Federal

policy of distributing the benefits of development, now concentrated in the south, more evenly throughout the country. It is a deliberate, rational trade off for Nigeria. But balancing such political considerations necessarily contributes to delays in project implementation.

"Once Burned" Syndrome.—Few countries are without any developmental "white elephants," and Nigeria has fared better than many. But there is that coastal road sinking into the swamps at an uncomfortable rate. A wrong process was selected for a cement plant, later requiring a costly changeover.

Nigerian officials acknowledge that some such mistakes might have been avoided with more thorough preliminary study, but they also complain that opportunistic promoters have taken advantage of some technically less qualified decisionmakers. Philip Asiodu, then chairman of the Nigerian National Oil Corporation, put it most directly in a June 1975 speech before the Nigerian-American Chamber of Commerce in New York: "These errors are . . . compounded by the greed of unscrupulous foreign machine peddlers where the local engineer/administrator advisor has insufficient knowledge, authority and status to secure the right political decision on a project."

But the backlash also can be costly. The once-burned bureaucrat can become so wary and vigilant that project costs may escalate and highly qualified contractors withdraw while he is considering the matter thoroughly or grappling with unfamiliar technology.

Physical Limitations.—These are problems that seldom will kill a project but will delay many. Transportation is the major difficulty. Nigerian ports are saturated. Ships laden with cement, steel, electrical cable and other vital materials waited up to 6 months to discharge at Lagos during 1975.

Some installations will require new access roads, new rail spurs, new power transmission lines, and new water supplies and waste disposal facilities. Some of these are allowed for in project cost estimates and can be provided by the executing agency without recourse to other departments; others, such as rail extensions, must be provided by a separate entity whose own Third Plan schedule governs the timing.

Insufficient Funds.—This possibility, though remote, as noted earlier, cannot be dismissed altogether. Some other countries that have based their development plans on pre-1975 oil production levels, such as Iran and Algeria, already have begun selectively paring projects.

The Third Plan indicated oil revenue (investment earnings plus taxes, royalties, licensing and other fees) of about \$10 billion for 1975-76; the Federal budget for this year, prepared more recently, estimates \$7.5 billion—a 25% shortfall. Actual oil revenue may fall in the \$6 billion to \$7 billion range, based on export levels in the first half of 1975.

Substantial as it is, this shortfall does not place Nigeria's development program in immediate jeopardy. The Third Plan estimates showed surpluses in the early years. Previous years' slower spending has created a modest cushion against deficits.

As this *Survey* was being readied for publication, OPEC was announcing a 10% oil price hike. Economic recovery is underway in several industrialized countries, promising increased petroleum demand. Nigerian crude oil production was approaching 2 million barrels per day (bpd) by the end of 1975—a substantial recovery from the 1.6 million bpd nadir that persisted through October, but still well below early 1974 levels. In January 1976, Nigeria was reported to be about to boost prices further (by charging a higher

Table 1.4.—Nominal and effective Third Plan allocations
(in billions of U.S. dollars)¹

	Public Sector			Private Sector			Total		
	Nomi- nal	Effec- tive	Per- cent	Nomi- nal	Effec- tive	Per- cent	Nomi- nal	Effec- tive	Per- cent
Agriculture (crops, livestock, fish, timber)	3.3	2.1	59	2.2	2.0	90	5.8	4.1	71
Mining and quarrying	4.4	2.3	52	2.0	1.8	92	6.4	4.1	64
Manufacturing and crafts	8.7	6.3	71	4.9	3.3	67	13.7	9.5	70
Electricity and water supply	3.3	1.6	50	—	—	—	3.3	1.6	50
Building and construction	—	—	—	6.1	4.4	73	6.1	4.4	73
Commerce and finance .....	.9	.2	18	2.5	2.3	92	3.4	2.5	72
Transport and communications	14.2	9.1	64	1.5	.8	56	15.7	9.9	63
General government	7.4	4.9	67	—	—	—	7.4	4.9	67
Education	4.1	2.5	61	—	—	—	4.1	2.5	61
Health and other services	5.8	4.0	53	2.1	1.8	88	9.5	5.8	60
Total ²	54.1	32.9	61	21.2	16.5	78	75.2	49.4	66

1. Converted from Naira at ₦ 1 = \$1.645.

2. Sums may not equal totals due to rounding.

Source: *Third National Development Plan*

premium for the low-sulfur content of its crude). This could raise more money if demand holds, or it could reduce sales of Nigerian oil.

No attempt will be made here to forecast the extent of these trends or their net effect on the Nigerian revenue picture. It is enough to recognize that the fountain of oil money, upon which Nigeria and other countries have relied, no longer can be taken entirely for granted.

Progress Varies

Table 1.4 shows significant differences in effective/nominal spending projections among economic sectors of the Third Plan, ranging from 18 to 92%. It would be a mistake to attribute these percentages to all the projects in the respective sectors; some will be executed almost on schedule, while others may be deferred years—perhaps to be undertaken under the *Fourth Plan*. However, some generalizations are possible.

Virtually every sector is allotted sums for ordinary construction projects such as new headquarters buildings, staff residences and training schools. These projects are particularly vulnerable to delays—first, because the Nigerian construction industry is already working at capacity and accumulating contract backlogs; and second, because heavy, bulky commodities such as cement and steel are among the slowest to move from shipboard to site. Thus, more of the expected shortfall in completion will be in pure construction, while the substantive projects such as mine development, agricultural development, and new power generating plants may move more quickly.

Also, those projects can advance faster which meet the criteria for participation by foreign firms that will contribute technical and managerial resources to augment domestic talent already stretched thin.

More achievement can be expected in sectors which have already undergone substantial development than in those planning first-of-their-kind projects. The electric power projects planned are similar to those previously completed, so the power development program will be less susceptible to delay than, say, the petrochemical complex, which will be Nigeria's first.

While results vary from state to state, a number of businessmen report that State Government projects progress more rapidly than those contracted at the Federal level. This is partly due to the generally smaller scale of state undertakings, but also to the usually shorter approval chain.

Projects which are the exclusive province of a single entity can be expected to advance more rapidly than those which cut across jurisdictional lines, for much the same reason. A ministerial realignment undertaken in 1975 should go a long

way toward alleviating delays for coordination. A newly created Ministry of Petroleum and Energy will handle a number of projects for which the former Ministries of Industry and of Mines and Power used to share responsibility. Aviation system development is to be expedited by the creation of a separate Ministry of Civil Aviation apart from the Ministry of Transport. The official list of new ministerial responsibilities is reproduced in the back of this volume.

The Contractor is the Key.—Even with all these influences, the key to maintaining progress is the quality of suppliers and contractors available to provide the goods and perform the work of developing Nigeria. Here the interest of the foreign firm in securing more business coincides neatly with the client's interest in timely start-up and completion. There is much the contractor can do to speed a project even from its inception, well before he wins the job.

Particularly where new procedures or technology are involved, a bidder should thoroughly explain his proposal, providing extensive general background as well as examples of successful applications elsewhere. He should relate it explicitly to Nigerian needs. This can remove at the outset one of the most common sources of delay.

Once selected to perform, the contractor must commit resources generously to build and maintain project momentum. Nigerians recognize the high overhead necessary for operating successfully in their country, and they are willing to pay for it. Nigeria is no place for the shoestring operator; allowance should be made for more personnel, larger spare parts inventories, and bigger travel budgets to get the job done. "The profit makes it worthwhile," said an American construction executive, explaining his decision to bring in a company airplane to support his Nigerian operations.

This says as much about competition as it does about prospects for implementing the Third Plan. The efficient firms, performing well, will capture an ever increasing share of Nigeria's development business; the slow-starters will be weeded out. This is why prospects are so favorable for American companies in Nigeria.

The U.S. Competitive Position

Indeed, prospects for substantial enlargement of the U.S. commercial presence in Nigeria have never been better. The reputation of American products for superior capacity and durability has long been upheld in Nigeria by U.S.-made construction machinery, transport equipment, mining machinery, and air-conditioning and refrigeration equipment. European manufacturers have captured large shares of the

Nigerian market for materials handling equipment, communications apparatus, and electric power transmission and distribution equipment, as well as vehicles and consumer products. Japanese producers have been especially successful in consumer electronics and passenger cars.

The United States ranked third among Nigeria's supplier countries in 1974, with an import market share of 12.3%. The United Kingdom led with 23.2%, followed by West Germany, with 15.3%. Nigerian imports from the United States valued at \$346 million; exports to the United States, mostly oil, reached \$3.3 billion, contributing to Nigeria's lopsided overall trade surplus of \$6.5 billion.

What these figures do not reveal is that American firms have been successful in Nigeria in most cases in which they have made a sustained marketing effort. The market holds promise for service companies as well as for manufacturers. Oilfield services is the most obvious example, but American engineering and construction companies have become more active just in the last year, and they are finding Nigerian clients most receptive to U.S. approaches and techniques.

Apart from relatively specialized work for the oil industry—towers and tanks, pipelines and platforms—the American construction industry has not been very active in Nigeria. This is changing rapidly as Nigeria's program for building highways, schools, hospitals, and plants attracts more and more U.S. building firms. A number of Nigerian officials are amazed at levels of efficiency which are taken for granted in the United States. Accustomed mainly to British construction techniques, they are discovering that American practices are at least as sound and much faster. Forming and pouring simultaneously on opposite sides of a multistory concrete building was virtually unheard of in Nigeria before a leading American construction company introduced the concept in 1975.

Another U.S. builder reports his Nigerian clients were particularly impressed with the more dynamic American approach to a new job. "When we came back to sign the contract, 2 weeks after we got the letter of intent, we had our detail drawings, CPM (critical path method) study—the whole works ready. They had never seen anything like it. Their other contractors had taken 6 months or more."

Most Nigerian officials interviewed for this *Survey* attached the greatest importance to timely completion of the projects they will administer. "We look most closely at their track record in on-time completions," was a typical comment on how competing proposals are evaluated. Against this background, it is clear that most U.S. firms will have a definite edge on much of their

European competition. Interestingly, some of the most potent competition will be from East European companies. Bulgarian and Yugoslav constructors have performed well in Nigeria so far and have established good working relationships with Nigerian subcontractors.

All the U.S. firms that are competing in Nigeria seem to be convinced that it is well worth the effort, but the newcomer to the Nigerian market should be aware that the effort required can be considerable.

Doing Business in Nigeria

Checking It Out.—The information in this *Survey* will go a long way toward indicating the marketability of many products and services in Nigeria, but it doesn't answer all the questions. Most marketing managers will want more specific data plus a better feel for the market, based on first-hand impressions.

Homework is the first step. A list of useful references is included in the back of this *Survey*. The Commerce Department's Country Marketing Manager (CMM) for Nigeria can suggest others related to the individual company's interests.

Consultations can be very helpful. Commerce and State Department officers have had considerable experience with and in Nigeria; they also have the collective experiences of hundreds of American businessmen already dealing with Nigeria. Many individual companies also are willing to share their knowledge. Addresses and phone numbers of U.S. firms in Nigeria, along with those of the CMM and other useful American and Nigerian contacts, appear in the back of this volume.

Getting There.—Four weeks should be allowed for obtaining a visa from the Nigerian Embassy in Washington or the Consulate in New York. Hotel reservations should be initiated up to 3 months before departure and written confirmation carried along. Smallpox, cholera, and yellow fever immunizations are required. (Current requirements should be checked with a public health official, personal doctor, travel service, passport office, or Nigerian authorities.)

Pan Am serves West Africa directly from New York. Most visitors arrive through Lagos (Ikeja) International Airport. Immigration and customs procedures require some time, at least until the new terminal is completed, probably in 1978. Taxi service to downtown Lagos is available at negotiated fares, which ranged from ₦7 to ₦15 (\$11.50–\$25) in 1975. Agree on the total fare in advance, there and throughout Nigeria.

Check with the American Embassy soon after arrival for information on current developments, business opportunities, and suggestions for appointments. The Embassy will be in a better

Selected Nigerian Hotels

Enugu	Kano
Presidential	Central
Ibadan	Lagos
Premier	Ikoyi
Jos	Federal Palace
Hill Station	Eko (Under construction; to be managed by Holiday Inn)
Kaduna	
Hamdala	Port Harcourt
Holiday Inn (Under construction)	Presidential

position to assist if notified in advance, either directly or through the Commerce Department.

Allow Plenty of Time.—Things take longer to accomplish in Nigeria—especially in Lagos. Traffic frequently congests to a standstill sometimes lasting for hours (called a “go-slow”). Telephone service is not yet fully dependable. If an individual you wish to see is absent (“not on seat”), keep trying.

The most practical means of getting to other Nigerian cities is commercial air—either Nigerian Airways domestic service or one of the half-dozen charter operators based at Lagos (see Chapter 9, Aviation).

Adequate medical facilities are available in most urban areas. A number of infectious diseases are common, and the foreign visitor should avoid unsanitary conditions, uncooked vegetables, and unboiled water (from which ice is usually made; take cocktails “straight up”). Regular use of malaria suppressants is recommended.

Business and government offices generally are open from 7:30 am to 4:00 pm weekdays and on Saturday mornings. Many establishments close for 2 hours at midday and remain open after 4.

Official Nigerian holidays are listed below with their dates in 1976; asterisks denote those which change from year to year. The *Ids* are Moslem holidays which advance about 11 days in each Gregorian calendar year.

January 1	New Year's Day
March 13	Id-el-Maulud*
April 16	Good Friday*
April 19	Easter Monday*
October 1	National Day
September 25-27 (estimated)	Id-el-Fitr*
December 2-3 (est.)	Id-el-Kabir*
December 25	Christmas
December 26	Boxing Day

Getting Set Up.—Presence is what Nigerian clients and customers look for as evidence that work will be satisfactorily performed, equipment will be properly installed and products can be repaired or replaced as required. Presence may take the form of a reputable, aggressive Nigerian agent who is attentive to your business.

However, what makes your product or service salable in Nigeria, in competition with those from other countries, is the American technology it

contains, and the value of this is best represented by an American. For example, foreign construction companies are eligible for only the largest of the government jobs—those considered too big or complex for Nigerian builders to undertake alone. To get such a job, a U.S. firm must convince the client that he will in fact receive American standards of management and performance. He will be convinced if he sees an American representative frequently in the pre-award period.

Appointment of sound Nigerian representation, coupled with periodic visits by stateside personnel, is an effective way to get started and remains quite satisfactory for some types of business. An example is design and engineering services, most of which are performed at home offices but which require visits for consultations, site surveys, and progress reports. Personnel would later be assigned for the duration of a construction supervision or equipment installation and start-up phase. This approach is exemplified by General Electric in its sale of gas turbine generators to the National Electric Power Authority, and by Charles T. Main Engineers in designing the Shiroro Gorge hydroelectric project, also for NEPA.

A substantial, continuous presence is required for successful sales to a number of customers, or sales of a large volume of products. Customers must be confident of spare parts and service availability; large-scale purchasers want their employees trained in maintenance and operation of equipment. Caterpillar and Piper are among the well-known U.S. companies that have established Nigerian distributorships to provide the product support essential for effective marketing in the country.

Ultimately, many companies find that the more permanent commitment of a Nigerian subsidiary company, usually in partnership with Nigerian interests, pays off handsomely despite the time and expense required to set one up and the necessity of having Nigerian partnership to the extent of 40% in many businesses. “Sixty percent of the profits gives us a very satisfactory return,” an American construction executive reports. Sterling, Colgate-Palmolive, and Foremost are among the U.S. companies with 40% Nigerian-owned manufacturing subsidiaries. “It’s still fairly new, but we don’t foresee any dilution of our operational control,” says another manager. IBM and NCR also are present as Nigerian-American partnerships.

Whatever form of collaboration is selected, certain fundamental precautions should be observed in selecting an associate in Nigeria, just as in the United States and other countries.

There are many Nigerian individuals and firms anxious to represent American companies; they range from prominent individuals and well-

established companies to students hoping to enter business between the completion of their studies in the United States and their return to Nigeria.

Any potential representative should be checked out with banks and trade references and with the American Embassy in Lagos or the Commerce Department's Country Marketing Manager for Nigeria in Washington.

The following U.S. Government services are provided to assist American firms in finding representation abroad.

The Agent/Distributor Service (ADS) provided by the Foreign Service identifies up to three potential foreign agents or distributors interested in a business relationship. The fee is \$25 per ADS. For details, contact any of the Commerce Department/DIBA District Offices.

World Traders Data Reports (WTDR), prepared by the Foreign Service, provide descriptive and background information on individual foreign firms. They include general financial and commercial data and selected specifics; e.g., trading connections, lines handled. U.S. firms ordering WTDRs must list each foreign firm's complete address. Individual WTDRs are available for \$15 and processed telegraphically within 30 days by appropriate Foreign Service posts.

Commerce Department Trade Promotion Events in Nigeria, 1976¹

Aviation Electronics and Ground Support Equipment Trade Mission	January 1976
Semi-Arid Land Develop- ment Technical Sales Seminar	February 1976
Office and Computer Re- lated Equipment Exhi- tion/Seminar—AMOFFICE TECH	June 1976
Consumer Goods Catalog Exhibit	August 1976
Modern Telecommunications Systems and Equipment Technical Sales Seminar	Sept. 1976

1. Schedule is tentative; consult the Country Marketing Manager—Nigeria for further information.

Investing in Nigeria

The welcome mat is out for reputable U.S. companies. Nigerian public officials have expressed disappointment that more American firms have not come to their country. The

newcomer need have no qualms about discriminatory treatment.

The United States and Nigeria restored their Investment Guarantee Agreement in March 1975, making American investments eligible for insurance by the Overseas Private Investment Corporation (OPIC). Nigeria officially welcomes all foreign investment. Current policy, however, is to encourage joint venture proposals. Only public utilities and strategic industries such as petrochemicals and iron and steel are wholly reserved to government ownership. Subject to necessary regulations, all other investment proposals may receive "approved status" with increasing alacrity, especially those offering to transfer technology and managerial skills to Nigerians.

Indigenization in Nigeria is intended to be a "boot-strap" operation to spread ownership in the private sector and to absorb some of the urban underemployed Nigerian talent. Government funds are being pumped into this effort in the form of small business loans, subsidies, equipment pools, ing programs and long- and medium-term credit arrangements.

There is no precedent for expropriation. In the case of the recently concluded negotiations with foreign oil producing companies, Nigeria arranged to buy into existing operations up to 55% from earnings with company approval. With 2 years to prepare for implementation of the Indigenization Decree, all foreign-owned businesses effected were able to comply by March 31, 1974 or seek approval for extension or waivers for extenuating circumstances.

Getting established in Nigeria involves a number of formalities which are time-consuming but tractable. The use of a Nigerian attorney is advised. The most important requirements are summarized below.

Company Registration.—Every company incorporated outside of Nigeria, but having the intention of carrying on any business in Nigeria, must give notice in writing to the Registrar of Companies (Ministry of Trade) to become incorporated in Nigeria.

Expatriate Quota /Residence Permits.—Any firm in Nigeria must have expatriate quota to employ non-Nigerian staff. Foreigners employed in Nigeria require residence permits which are issued against these quotas; these can take several months to obtain. A foreign company setting up in Nigeria should address inquiries about expatriate quotas to the Chief Federal Immigration Officer, 23 Marina, P.M.B. 2532, Lagos. All activities where expatriates are employed will be subject to periodic review to ensure that technical and managerial positions are being filled by Nigerians.

Approved Status.—After incorporation, application for "approved status" may be submitted by

letter to the Federal Ministry of Finance in Lagos with a completed questionnaire. "Approved status" qualifies a foreign-owned business to repatriate profits. Applications to remit dividends abroad are approved with endorsement from the tax authorities showing the firm is not in arrears. Nigeria values its past record of fair treatment of applications for repatriations and would withhold them only in exceptional circumstances.

Indigenization.—The Nigerian Enterprises Promotion Decree 1972 seeks to secure greater local participation on mutually beneficial terms to further the economic advance of Nigerian citizens and avoid clashes of interest which may arise from predominance of foreign investment in certain areas of the economy. Twenty-two types of enterprise are reserved exclusively for Nigerians in Schedule 1 of the Decree:

- Advertising agencies and public relations business
- All aspects of pool betting business and lotteries
- Assembly of radios, radiograms, record changers, television sets, tape recorders and other electric domestic appliances, not combined with manufacture of components
- Blending and bottling of alcoholic drinks
- Blocks, bricks and ordinary tiles manufacture for building and construction works
- Bread and cakemaking
- Candle manufacture
- Casinos and gaming centers
- Cinemas and other places of entertainment
- Clearing and forwarding agencies
- Hairdressing
- Haulage of goods by road (except oil)
- Laundry and drycleaning
- Manufacture of jewelry and related articles
- Newspaper publishing and printing
- Ordinary garment manufacture not combined with production of textile materials
- Municipal bus service and taxis
- Radio and television broadcasting
- Retail trade (except by or within department stores and supermarkets)
- Rice milling
- Basic cotton goods manufacture
- Tire retreading

A second category of 33 types of enterprises is reserved for at least 40% Nigerian participation. These are generally more sophisticated activities, with paid up capital exceeding \$600,000 or annual turnover exceeding \$1.5 million, in which there is, at the present time, insufficient indigenous expertise.

Minimum 40% Nigerian ownership

- Beer brewing
- Boat building
- Bicycle and motorcycle tire manufacture
- Bottling soft drinks

Nigeria at a Glance

People

Population: 63 million (est.); annual growth rate: 2.4%
 Language: English (official); main tribal languages: Yoruba, Ibo, Hausa, Fulani
 Literacy: 25%

Geography

Area: 357,000 square miles
 Principal Cities: Lagos (national capital)—1.5 million, Ibadan—1.3 million, Kano—300,000

Economy

GNP: \$24.4 billion (1974); private income: \$2.8 billion; per capita income \$200
 Trade: Imports—\$2.8 billion (1974); machinery and transport equipment, foodstuffs; partners—U.K., other EEC, USA
 Exports: \$9.3 billion (1974); petroleum (92%) tin, cocoa, palm oil; partners—U.S., U.K., other EEC
 Balance of Payments: \$6.5 billion surplus
 Foreign Investment: \$2 billion (1974), U.S. \$1 billion
 Currency: Naira; 1 naira (₦1) = \$1.64, 1975.

Government

Type: Federal Republic (military role) divided into 12 states (see map 1.1) headed by military Governors.
 Branches: Executive—Supreme Commander of Armed Forces is head of Federal Military Government, composed of Supreme Military Council, Federal Executive Council and National Council of States. Legislative—powers vested in executive since 1966. Judiciary—Federal Supreme Court, State High Courts.

- Coastal and inland waterways shipping
- Construction industries
- Cosmetics and perfume manufacture
- Department stores and supermarkets
- Distribution agencies for machines and technical equipment
- Distribution and servicing of motor vehicles, tractors and spare parts
- Estate agency (business and real estate brokerage)
- Fish and shrimp trawling and processing
- Furniture making
- Manufacture of insecticides, pesticides and fungicides
- Internal air transport
- Manufacture of bicycles
- Manufacture of cement
- Manufacture of matches
- Manufacture of metal containers
- Manufacture of paints, varnishes or other similar articles
- Manufacture of soaps and detergents
- Manufacture of suitcases, briefcases, handbags, purses, wallets, portfolios and shopping bags
- Manufacture of wire, nails, washers, bolts, nuts, rivets and other similar articles

- Paper conversion industries
- Passenger bus services (interstate)
- Poultry farming
- Printing of books
- Production of sawn timber, plywood, veneers and other wood conversion industries
- Screen printing on cloth, dyeing
- Slaughtering, storage, distribution and processing of meat
- Shipping
- Travel agencies
- Wholesale distribution

Enterprises already established in Nigeria, affected by this Decree, were given 2 years to comply with provisions for transfer of 40% or more ownership to Nigerians. The Nigerian Enterprises Promotion Board, established by the Decree, determined valuations and otherwise facilitated compliance with the Law. Any new enterprise would gain goodwill from an offer of such participation whether legally required or not.

The term "Nigerianization" is not synonymous with "nationalization" because the business remains in private hands, new private industry is being encouraged under the new rules, and compensation is as mutually arranged.

The Nigerian Government offers a number of incentives to encourage private sector industrial development. The most important is a tax holiday of 2-5 years for companies in the "pioneer industries" listed below. (The Ministry of Industry may confer pioneer status on industries not yet listed.) Tax exemption continues beyond the second year only for loss periods or years when capital spending exceeds \$300,000.

"Pioneer Industries"

- Cultivation and processing of food crops, vegetables and fruits
- Manufacture of cocoa products
- Processing of oilseeds
- Integrated dairy products
- Cattle and other livestock ranching
- Bone crushing
- Fishing
 - Deep-sea trawling and processing
 - Coastal fishing and shrimping
 - Inland lake fishing and processing
- Manufacture of salt
- Mining of lead/zinc ores by underground mining methods
- Manufacture of iron and steel from iron ore
- Smelting and refining of nonferrous base metals and alloys
- Mining and processing of barytes and minerals
- Manufacture of oil-well drilling materials
- Manufacture of cement
- Manufacture of glass and glassware
- Manufacture of lime from local limestone
- Quarrying and processing of marble
- Manufacture of ceramic products
- Manufacture of basic and intermediate industrial chemicals
- Manufacture of pharmaceuticals

- Manufacture of surgical dressings
- Manufacture of starch
- Manufacture of yeast, alcohol and related products
- Manufacture of animal feedstuff
- Manufacture of paper-pulp, paper and paperboard
- Manufacture of articles of paper-pulp, paper and paperboard
- Manufacture of leather
- Manufacture of textile fabrics and man-made fibers
- Manufacture of products made wholly or mainly of metal
- Manufacture of machinery involving the local manufacture of components thereof
- Manufacture of goods made of rubber

Other benefits include remission of duties on imported manufacturing plant, protection against dumped or subsidized competing imports, and duty drawback for materials reexported in Nigerian manufactures.

More information on these provisions and on Nigerian taxation and other regulations is contained in the Commerce Department publication *Marketing in Nigeria*, available from Commerce District offices.

Promoting Your Business

The value of establishing a presence in Nigeria cannot be overemphasized. But there are additional techniques for promoting your business that can be undertaken on an individual basis or with U.S. Government support and the cooperation of other American firms.

Promotional Events.—A most effective means of reaching potential customers, promotional events in Nigeria are invariably well-attended. Product displays and seminars to introduce modern technology have the greatest appeal.

Technical seminars have been staged by the Department of Commerce with the support of the American Embassy in Lagos. With up to 10 U.S. companies each presenting the latest advances in their technology, these events have attracted businessmen and professionals from distant parts of Nigeria and from adjacent markets. More of these events will be scheduled (see box).

In one recent case, an American manufacturer and his Nigerian representative provided a series of five seminars to introduce to Nigerian engineers the technology they hoped to provide in a forthcoming power project. The groundwork paid off; they got the contract.

The sales impact of product exhibitions is tremendous in Nigeria. Although the logistics of mounting a show can be difficult, the Commerce Department plans to make increasing use of this medium, subject to the level of interest on the part of potential American exhibitors.

A British industrial exhibition staged in Lagos in 1973 recorded immediate sales of \$10 million,

including off-the-floor sales of all display items. An exhibition of U.S. foods sponsored by the Department of Agriculture in May 1975 was enthusiastically received; \$532,000 in orders were written during the event, with an additional \$2.5 million in sales projected for the next 12 months.

Media Advertising.—Nigerian clients and customers can be reached through a variety of advertising media, both Nigerian and foreign.

Many professionals in a position to influence procurement of high technology items such as medical equipment, power systems, mining machinery, and oilfield equipment read the leading English language journals and trade magazines published in the United States, Canada, and Britain. International editions of *Newsweek* and *Time* are widely read in Lagos. The American Embassy's *Commercial Newsletter* carries new product information submitted to the Commerce Department district offices by U.S. firms. (The information is available to all American Embassies for this purpose.) Nigerian printed media are described in the chapter on Printing.

Electronic media are used mostly for advertising consumer products—usually food items. Nigerian radio sometimes carries promotional pieces for British engineering goods, thinly disguised as interviews with leading manufacturers.

The Voice of America also carries new product features. The chapter on Communications discusses Nigerian broadcasting.

Movie advertising of consumer products runs for 20–40 minutes before each full length feature. Sound trucks are used to sell cosmetics, patent medicines, and food items.

There are a number of Nigerian advertising agencies that arrange media advertising.

Government Procurement.—The Nigerian State and Federal Governments and their statutory corporations invite competitive tenders on most goods and nearly all project services. Negotiated procurement is confined to cases of extreme urgency, such as repair or replacement of a vital installation by the original vendor.

Invitations to tender are published in the Nigerian press. For all procurement involving foreign goods or services, invitations are circulated to the Embassies in Lagos and may be advertised in London newspapers or in appropriate professional periodicals such as the U.S. published *Engineering News Record*. The American Embassy in Lagos cables all such announcements to Washington soon after receipt; the Commerce Department publishes them in *Commerce America*, *Commerce Business Daily*, and the *Quarterly Summary of Construction Abroad*, or distributes them through its Trade Opportunities Program (TOP). Having a direct source of tender information, however, often allows earlier

notification and more time to prepare bids. An alert agent can usually know about forthcoming projects in advance of formal announcement.

Sometimes a prequalifying procedure is used. For construction projects, invitations may be directed to all contractors registered with the Ministry of Works. In highly technical fields, when the number of potential suppliers is not large, "all known suppliers" may be sent invitations.

Award procedures vary with contract value; all above ₦5,000 (about \$8,225) must be considered by the Tenders Board of the department or corporation concerned. No further review is necessary for purchases up to \$164,500 (\$329,000 for the police and armed forces).

Contracts up to \$822,500 may be approved by Ministerial Tenders Boards, where they exist, or by the Federal Tenders Board, and by the boards of some corporations.

All contracts valued above \$822,500 must be cleared by the Federal Executive Council.

Even with prompt technical review and recommendation by the contracting authority, the award process consumes 3–4 months if Federal Executive Council approval is involved. Therefore, bids usually must be valid for at least 4 months.

Nigerian experience with combination design and construction contracts has produced an aversion to the "turn-key" approach. Omnibus contracts will be avoided in the future and can be awarded only with approval of the Federal Executive Council.

"Dash"

This practice, which goes by several names in many countries, has come in for a lot of public attention recently. It is a gratuity tendered before, rather than after, a service is performed. In its most rudimentary form it may recover a mislaid hotel registration. Beyond this, opinions among successful companies operating in Nigeria vary widely as to how pervasive the practice is and whether it is necessary to conform. One firm reports a 12-year history of steadily increasing, highly profitable Nigerian business "without ever having paid a penny's dash." Another company representative claims day-to-day operations would come to a standstill without it. There are many shades of opinion in between.

Aside from moral considerations and the provision of U.S. laws and regulations, the following several factors should be taken into account.

Although dash may occasionally offer a shortcut, operation without it is possible and profitable over the long haul, according to officials of a number of firms.

The new Nigerian Government publicly condemned the practice and reportedly has discharged significant numbers of employees alleged to have been corrupt. Whether and to what extent giving and receiving dash will henceforth be stigmatized remains to be seen.

Dash does not cut red tape; it only may part it temporarily. It does not buy a permit, license or relief from frustration; it only rents it. One can develop a dash dependency almost like a drug addiction. What is done in an offhand way to dispose of a petty annoyance may become expected once word gets around.

Delivering the Goods

Many Nigerian economic activities have been hobbled by slow deliveries. Nigerian and foreign customers in the country recognize the high cost of lost time and larger inventories. A good delivery record virtually assures follow-on business.

Shipping.—Ports and airports in Nigeria are congested, but there are a number of measures that can reduce the impact of this congestion on your shipment.

Most of the 300-odd ships waiting to berth at Lagos in September 1975 were nonconference vessels. The Nigerian Ports Authority has assigned berths to each of several shipping conferences serving West Africa. The conferences manage the berths, schedule member ships in and out, and even buy their own materials handling equipment to augment that available from the Ports Authority. (See the chapter on Water Transport.) The time saving possible may be worth the extra cost. Farrell Lines and Delta Lines both provide regular service to Lagos.

Calculate comparative air freight costs closely, cranking in some savings for reduced breakage

and pilferage (lower insurance rates) as well as speedier delivery. Peugeot is airshipping engines and chassis from France for its new assembly plant at Kaduna.

Be extra careful in processing required documentation; detailed requirements are given in the back of this *Survey*. Because the volume of freight stacking up at Nigerian airports and ports makes it increasingly difficult to locate individual shipments, notify consignees of shipping data promptly, identifying shipments as fully as possible. For air shipments from the United States air waybill numbers and departing carrier and flight are often insufficient. Many such shipments are eventually routed through New York and/or Europe. To find them in Nigeria, the consignee usually must know the carrier and flight for the Nigerian leg—information he cannot get on that end. The only solution is for the shipper to track the goods, advising his customer of any transshipment points, the carriers to which transferred, and when.

Payment.—Effective April 1, 1975, the Nigerian Government formally eliminated the waiting period previously required for Central Bank endorsement of letters of credit before foreign exchange payments could be remitted; this in turn has been conditioned upon customs clearance of the goods. The switch from this cumbersome procedure to normal commercial practice of payment against documents has not taken place overnight, and some suppliers continued to experience delays a few months after the official changeover. However, as the backlog is cleared out, the situation is expected to improve until the delays, which once deterred some exporters from active participation in the Nigerian market, are eliminated.

Chapter 2

ELECTRIC POWER

HIGHLIGHTS

Reflecting Nigeria's overall economic growth, consumption of electrical energy has nearly tripled in the last 5 years, from 914,000 megawatt-hours (MW) in 1969/70 to 2,401,000 MW in 1974/75. Even moderate projections of future growth place 1980/81 energy sales at the level of 7,150,000 MW—tripled again in just 6 years.

To meet this rapidly mounting demand, Nigeria's countrywide electric utility, the National Electric Power Authority (NEPA), will spend some \$1.7 billion over the next 5 years for new generating capacity, transmission and distribution systems, and rural electrification (see table 2.1). State Governments plan additional rural electrification projects valued at \$233 million. (These figures are based on 1973/74 prices.) One NEPA executive estimated the total will approach \$3 billion at current prices.

With annual growth in maximum demand expected to average more than 20% over the next 5 years, NEPA is engaged in what amounts to a race with its customers to increase generating capacity faster than peak loads. NEPA management, therefore, will continue to give particular attention to delivery and completion times in contracting for some 1,050 MW of new generating capacity during the 1975–80 period. The same approach will be taken in the selection of contractors to erect the more than 5,800 kilometers of high voltage transmission lines and install the \$213 million worth of distribution facilities also scheduled for construction during the 5 years of Nigeria's *Third National Development Plan*.

The need for power generation machinery extends to many other sectors of Nigeria's economy. Although the NEPA grid is being extended rapidly, there remain a number of areas where industrial and commercial activities furnish their own electric power. Several major new industrial projects have been planned to generate their own power: the new refinery to be built at Warri, the LNG plants at Escravos and Bonny, and the steel complex at Ajaokuta. Even where utility power is supplied, interruptions and voltage fluctuations encourage many users to install standby generators to carry essential loads.

Nigeria's petroleum industry (see Chapter 4,

Petroleum) is perhaps the largest non-utility market for power machinery. Most oilfield operations are either offshore or in swamps and marshes where utility power is unavailable but abundant natural gas is flared. Gas turbine requirements will increase further with wider use of gas reinjection beginning late 1975.

EQUIPMENT REQUIREMENTS

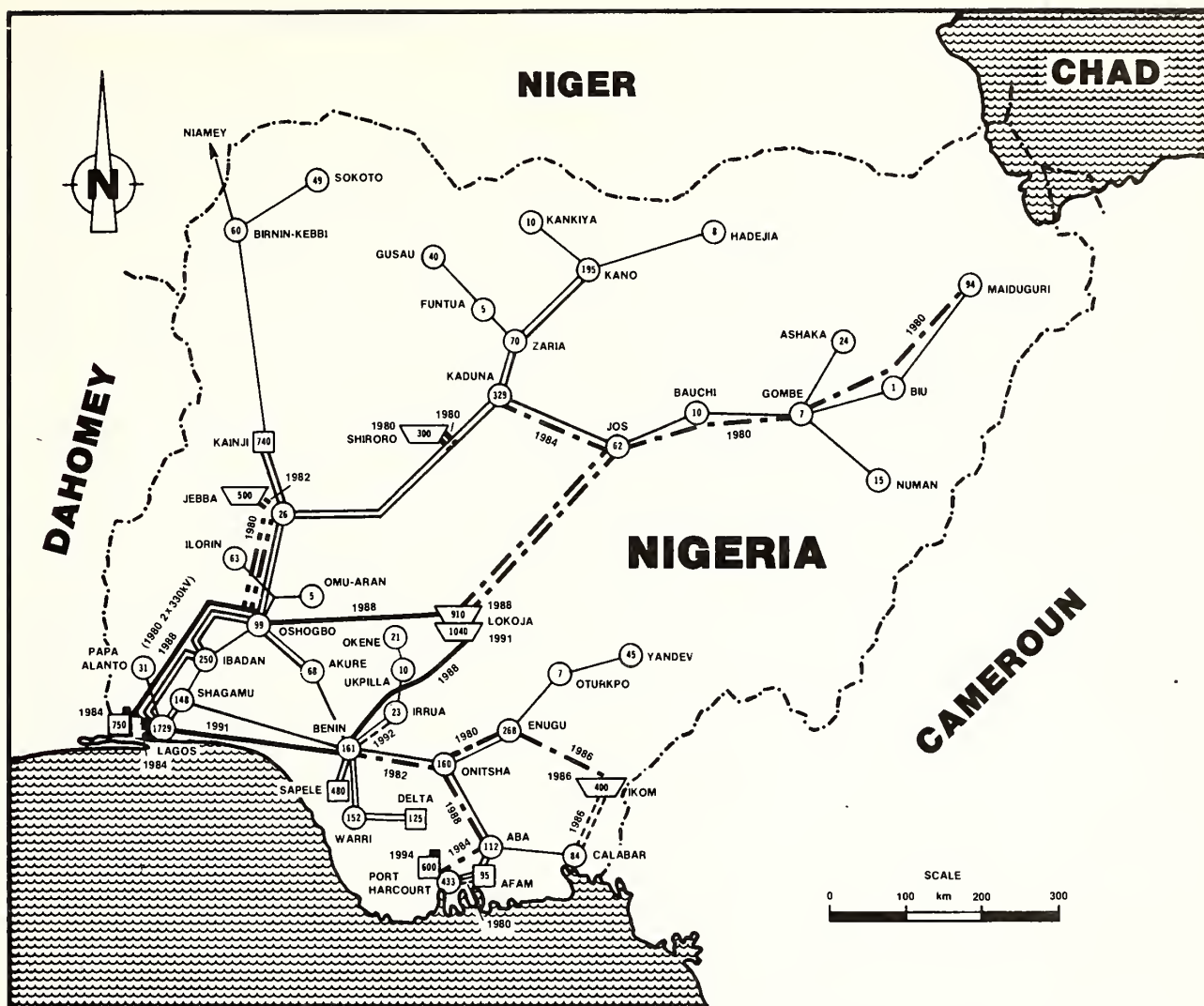
Nigerian purchases of power generation and distribution equipment are growing at a phenomenal rate; imports increased 50% from \$41.8 million to \$64.4 million from 1972 to 1973, and again the following year to \$96.8 million. By 1980, Nigeria is expected to be spending nearly \$250 million each year for foreign-made power equipment (see table 2.2). This does not include the extensive purchases of transmission line and towers for the country's rapidly expanding three- and four-wire transmission/distribution network.

Sales potential for steam and hydraulic power plant and heavy generators generally follows the progress of major NEPA projects. Gas turbine sales will also reflect the pace of petroleum industry activity, particularly secondary recovery of oil and LNG plant construction.

Diesel power has been widely used in local utility plants, but is being phased out as the NEPA grid expands. By 1978, grid power is to be extended for all electrification except that of towns isolated in the swampy Niger River Delta area and a few other remote points. Industrial and institutional demand for diesel generator sets, however, is expected to grow 16–20% annually over the next 5 years.

Smaller gasoline and diesel driven generator sets will sell briskly to residential and commercial customers wanting standby power and to construction firms for onsite equipment.

Thousands of distribution transformers will be purchased in the 1975–80 period by NEPA and its contractors and by contractors to the State Governments as well. To accommodate the expected 942 MW increase in maximum demand over the 5-year period, an estimated 1,570,000 KVA of distribution transformer capacity will have to be added. The extent of these requirements has prompted the Government to encourage establishment of a transformer factory in Nigeria. NEPA has drafted guidelines for a joint-venture manufacturing operation for which



Development of National Grid System

National Electric Power Authority, Nigeria

Plan for electrical power system development

Legend










-  330 kV and 132 kV feeding point, 70MW maximum demand in 1994/95
-  Existing power station 740 MW
-  New thermal power station 600 MW, to be ready for service in 1980/81
-  New hydroelectric power station 500 MW, to be ready for service in 1981/82
-  Existing or committed 132 kV line
-  Existing or committed 330 kV line
-  Proposed 132 kV line, to be ready for service in 1981/82
-  Proposed 330 kV line, to be ready for service in 1980/81
-  Proposed 700 kV line, to be ready for service in 1991/92

Table 2.1.—Summary of electric utility investments, 1976–80¹

(in millions of U.S. dollars)²

	1976	1977	1978	1979	1980	Five year totals
NEPA						
Thermal generation	70.4	66.9	49.3	27.3	10.5	224.4
Hydraulic generation	24.0	31.9	41.6	94.4	242.4	434.3
Total generation	94.4	98.8	90.9	121.7	252.9	658.7
High voltage transmission ³	73.9	71.6	83.8	91.3	80.8	401.4
Distribution system improvements (33/11 kv.)	34.9	34.0	41.1	49.3	55.9	215.2
Communications equipment, vehicles, buildings, and training	15.5	15.6	21.7	21.2	22.6	96.6
Rural electrification	39.7	22.7	3.9	41.1	41.1	148.5
States' rural electrification	28.3	42.8	62.5	52.6	49.3	235.5
Total	286.7	285.5	303.9	377.2	502.6	1,756.9

1. Years ending March 31.

2. Converted from Naira at ₦1 = \$1.645.

3. Includes transmission line projects, estimated to cost \$16.6 million, which have been programmed since formulation of the Third National Development Plan.

Sources: Third National Development Plan and the National Electric Power Authority.

proposals were to be invited from foreign companies in late 1975. The draft indicated production of units of up to 1,000 KVA capacity at up to 33 KV. Incentive would take the form of an agreed percentage preference (which would decline over time) in competitive NEPA procurement, but no purchases would be guaranteed nor protective tariffs enacted. Technology transfer would be required, with Nigerianization of the managerial staff by 7 years after start-up.

NEPA equipment needs of course range far beyond the energy systems. The utility is striving to mechanize its maintenance operations and train additional personnel to cope with the rate of system expansion and the demand for new service connections. Additional vehicles are acutely needed—particularly rough-terrain vehicles, cherrypickers, and swamp boats and buggies. In 1974, NEPA drafted proposed equipment complements for electrical maintenance, line maintenance, and line crew transport in the typical service region. Taking into account the projected creation of a fifth service region in 1975–76, these equipment requirements, most of which remain to be filled, would total to the following:

5-ton trucks with 30,000 lb. winch and 31 ft. hydraulic boom	10
Modwell-type tractors with 30,000 lb. winch and optional 31 ft. hydraulic boom	5
46 ft. insulated aerial devices with two buckets, mounted on chassis for on or off-road service	5
Long-wheelbase, Land Rover-type vehicles (9-passenger)	15
Trailers for above	5
12-ton capacity low-bed trailers	5
Trailers for live-line tools	5
Pole trailers	5
1.5-ton service trucks (Ford van-type)	5
Half-ton pick-up trucks	5
Station wagons	10
90 cc bush-type motor bikes	10

Portable oil filters	5
Oil purifiers (transformer oil)	5

In sourcing this equipment, NEPA will be influenced by serviceability and parts availability, delivery, durability in off-road service, and cost—in approximately that order. It is emphasized that this represents an initial requirement for system maintenance activities only. One NEPA manager forecast that a supplier of reliable off-road vehicles with good parts service could sell the utility 300–400 units over the next 5 years. Total NEPA purchases of transport equipment in this period should amount to \$25 million.

In addition to routine service, line maintenance engineers must cope with vandalism of transmission towers in some parts of Nigeria. Theft of fastening hardware for use in vehicle repairs is serious enough, but some opportunists have dismantled towers altogether, fashioning bedframes from the steel members and springs from the steel-reinforced conductors. NEPA urgently seeks temporary replacement towers to store in vulnerable regions for quick restoration of service; the units should be lightweight and easily transported and erected—preferably without the use of a crane. Towers must carry three conductors arrayed horizontally at a height of 90 to 100 feet.

NEPA requires ever increasing amounts of cable and accessories, switchgear, and expendable supplies for new installations and for maintenance. A selected list of procurement in the first 6 months of 1975 alone amounted to nearly \$4 million (see table 2.3).

Electrical test and monitoring equipment also has good sales potential. In addition to the NEPA requirements, the Electrical Inspectorate of the Ministry of Mines and Power—responsible for safety and operating standards for all electrical power installations in Nigeria—is shopping for \$360,000 worth of new test equipment in 1975 and 1976.

COMPETITION

American competitive strength in the energy sector has been uneven. Year-to-year import market shares have fluctuated widely, reflecting the varied sourcing of major equipment items for the large power projects undertaken during the period of the *Second Five Year Plan*.

The National Electric Power Authority has retained Canadian consultants for several years, and Canadian, British, German, Dutch, and Swiss engineering firms have garnered a major share of NEPA engineering contracts. This may, however, be due as much to the heretofore low level of interest by American companies as to any institutional bias. NEPA is receptive to proposals from American firms, both for design/construction supervision and for equipment supply and installation.

U.S. firms have won some significant contracts; General Electric has furnished the six 20 MW gas turbines for the Delta #2 Power Station at Ughelli. Engineering for the 300 MW Shiroro Gorge hydroelectric project will be performed by Charles T. Main under a contract awarded in 1975.

NEPA terms of reference generally follow International Electrical Commission (IEC) standards, although British Standard Specifications (BSS) continue to be cited by NEPA engineers and particularly by contractors to State

Governments. This has been especially true in the case of distribution transformers, usually specified to meet BSS 171 of 1969.

The effect of these specifying practices on competition is most pronounced in the procurement of lower unit value items such as the transformers, switches, relays, fuses, etc., used in local distribution and rural electrification projects. Of the orders aggregated in table 2.3, for example, the overwhelming majority was placed in the United Kingdom where NEPA has a purchasing office. This influence diminishes in the sourcing of major-project motive and generation equipment, switchgear, and transmission apparatus. However, experience of several contenders for choice, major-installation contracts suggests that there are also pitfalls in this area (see the section on "Marketing Approaches").

The leading competitor to U.S. suppliers for large-scale projects is Brown-Boveri (Swiss). Potent competition also comes from Hitachi and Mitsubishi (Japan), M.A.N. (Germany), G.I.E. (Italy), G.E.C. and C.A. Parsons (United Kingdom), and Voest (Austria).

American diesel generator sets are widely used. Caterpillar probably supplies the most significant portion, but lengthened deliveries threaten to erode its market position. "We used to specify Caterpillar," said the Chief Engineer for one State's electrification program, "but a year after our last order, only one of four units had been

Table 2.2.—Nigerian imports of power generation and distribution equipment, 1972–80
(in millions of U.S. dollars)¹

Nigerian S.I.T.C.	Description	1972	1973	1974	1975	1976	1977	1978	1979	1980
711 20	Boiler house plant .....	.5	.4	1.1	3.2	4.3	1.9	1.5	1.3	1.4
711 10	Steam turbines .....	.6	.8	2.5	4.0	15.0	8.2	1.7	1.5	1.8
711 60	Gas turbines (non-açft) .....	.6	.1	9.9	11.0	28.0	10.7	13.5	16.3	19.7
711 80	Hydraulic turbines and other .....	.5	.7	1.6	2.0	1.4	3.0	4.4	7.0	4.7
711 511	Industrial diesels up to 100 bhp	2.3	1.4	2.0	3.1	3.7	4.3	5.0	6.1	7.5
711 521	Industrial diesels exceeding 100 bhp .....	.1	.3	.4	.8	1.2	1.5	1.6	1.8	1.9
711 531	Other stationary industrial engines .....	.1	.2	.5	.8	1.1	1.5	1.8	1.9	2.1
711 591	Parts for stationary industrial engines	5.5	5.7	7.4	10.5	18.8	19.0	23.5	27.3	31.0
Subtotal	Nonelectric power machinery	10.3	9.6	25.4	35.4	73.5	50.1	53.0	63.2	70.1
722 11	Complete generators up to 200 kw	4.0	9.5	17.6	25.0	32.0	40.0	48.0	50.0	52.5
722 12	Complete generators exceeding 200 kw	3.0	4.4	3.9	3.2	5.4	6.3	6.5	7.7	8.1
Subtotal	Electric generators	7.0	13.9	21.5	28.2	37.4	46.3	54.5	57.7	60.6
722 15	Electric transformers, converters, etc.	3.0	5.0	10.1	12.3	15.2	18.5	22.1	26.2	30.2
722 19	Parts of electric power machinery	1.4	3.0	3.0	3.6	4.3	5.1	6.1	7.4	8.9
722 20	Electrical apparatus for making and breaking circuits	12.0	16.6	21.5	28.1	33.8	24.5	31.9	38.2	44.0
723 10	Insulated distribution cable	7.0	15.3	13.8	15.6	17.2	19.8	22.3	25.2	29.5
723 20	Electrical insulating equipment	2.5	1.0	1.5	2.0	2.3	2.7	3.3	3.9	4.5
	Grand Total	41.8	64.4	96.8	125.2	183.7	167.0	193.2	221.8	247.8

1. Converted from Naira at following exchange rates: 1972–73: ₦ 1 = \$1.52. 1974: ₦ 1 = \$1.62. 1975–80: projected in dollars.

Sources: 1972–74 data from Federal Office of Statistics, Lagos; 1975 estimates and 1976–80 projections based on trade source interviews and the *Third National Development Plan*.

delivered, so we no longer specify a type." (His government is buying 30 diesel generators of 175–230 KW between 1976 and 1980.) NEPA has a number of 2 MW Detroit Diesel units in local service around the country.

Table 2.3.—Summary of NEPA supply orders for maintenance and electrification¹ requirements January to June, 1975
(in U.S. dollars)²

Item	Value
CABLES	
Bare conductors – Al:	
800,000 m x 95 mm ² ,	
3,063,393 m x 70 mm ² ,	
435,282 m x 35 mm ² ; and	
Bare conductors – Cu:	
50,000 m x 70 mm ²	1,052,300
Other cable: 418,900 m	1,189,300
CABLE ACCESSORIES	
Terminal and junction boxes	358,200
Insulators:	
HV pin insulators, shackle and	
guy-wire insulators:	
350,000 units	130,300
Other	1,000
Insulator fittings:	
Spindles, hooks, clamps, adapters:	
32,000 units	97,700
Adapter socket hangars:	
1,500 units	35,800
FUSES AND FUSE GEAR	
HRC, RMU fuses – 1,000 units;	
Renewable fuses – 6,000 units;	
Expulsion fuses, cartridges, fuse links –	
28,000 units; and	
Feeder pillar fuses –	
50,000 units	335,300
O/H LINE ISOLATORS AND SWITCHES	
1,200 units	221,500
TEST EQUIPMENT,	
GENERATOR PANELS.....	204,700
LINE TAPS (A1) – 100,000 units	61,900
RING MAIN UNITS	73,800
CIRCUIT BREAKERS, RELAYS,	
CLOSING COILS	68,000
BUSBARS, CONNECTORS,	
LIGHTENING ARRESTORS.....	57,800
HARDWARE	
D-irons – 100,000	61,900
Bolts, nuts, straps, washers	27,700
MISCELLANEOUS EXPENDABLES	
(tape, sleeves, joint compound,	
impregnated paper, etc.)	8,600
Total	\$3,923,900

1. Does not include major transmission line projects or electrification performed by contractors.

2. Compiled from orders denominated in Naira, Sterling, and Deutschmarks; aggregated in Naira; converted to U.S. \$ at ₦1 = \$1.629. Import values c.i.f.

Source: National Electric Power Authority, Lagos.

Financing

NEPA and its predecessor companies have financed most existing plant with a mixture of supplier loans and multilateral financing; however, foreign financing no longer figures significantly in NEPA purchase decisions.

The World Bank and the export financing institutions of the United States, Germany, and the United Kingdom have been the principal lenders. Credit has been extended for services as well as plant. Table 2.4 summarizes outstanding long-term loans.

Although NEPA may continue to accept favorable foreign financing for forthcoming capital purchases, the new Nigerian prosperity permits the Authority to pay cash and be governed by its primary procurement objectives—delivery/completion times and maintainability—for sourcing all major projects and most others.

The rare exception is most likely to be some relatively small portion of the electrification program, where the offer of tied financing may in fact induce the project rather than the other way around. The NEPA program to electrify areas to the south and southwest of Jos in Benue-Plateau State is such a project (see "Rural Electrification"). The British Government offered a loan of \$3 million for U.K. manufactures and services to do the job. The work will be performed by the British-owned Nigerian Electricity Supply Corporation (NESCO), which has constructed and maintained its own distribution system in the Jos area for some decades. Several States' electrification projects have also benefitted from foreign government-donated or financed technical services.

Still, these undertakings form a relatively insignificant portion of Nigerian power system investment—both in number and value. For the most part, financing terms will not weigh heavily in decisions among suppliers distinguished by their delivery commitments and performance track records.

SECTOR ANALYSIS NEPA

The government owned National Electric Power Authority is the principal electric power utility in Nigeria. Created by the 1972 merger of the Electric Company of Nigeria and the Niger Dams Authority, the utility moved rapidly to consolidate management and planning activities. In 1974, the areas fed by the 320 MW Kainji Dam hydroelectric plant were tied to those served primarily by the 55 MW Afam thermal station in a major step toward the creation of a nationwide power grid.

Table 2.4.—Long-term foreign loans to NEPA

(in millions of U.S. dollars)¹

<i>Lender</i>	<i>Year</i>	<i>Principal amount</i>
World Bank	1964	82.0
	1966	30.0
	1968	14.5
	1972	76.0
Italian Government	1964	24.0
United Kingdom		
U.K./Nigeria Credit Agreement	1969	1.1
Export Credit Guarantee Department	1964	12.0
United States		
Agency for International Development (USAID)	1964	14.0
Eximbank	1965	3.4
Netherlands Government	1964	3.4
West German Government	1972	4.7
	1973	8.7
Canadian Government	1972	1.0
Japanese Export-Import Bank	1973	15.4

1. Italian, British, Dutch, German, and Japanese loans were denominated in those respective currencies. Dollar values were calculated from Naira equivalents carried on NEPA books, using the following exchange rates: 1964-71: ₦1 = \$1.40; 1972, 73: ₦1 = \$1.52.

Source: National Electric Power Authority 1973-74 *Annual Report and Accounts*.

From the first year of NEPA's operation (1972/73) to the second, the number of customers increased from 338,300 to 390,300—a gain of 15%. At the same time, energy sales rose 16% from 1,752 billion KWH to 2,412 billion KWH, boosting revenue from sales from ₦54 million to ₦62 million. (Average revenue per KWH remained constant at 3.08 kobo, or 5.07¢ at the June 1975 rate of exchange.) The NEPA distribution network increased even more significantly from 10,754 km to 13,123 km. Distribution efficiency has been about 85%, although power theft has caused greater discrepancies between generation and energy sales from time to time.

Less than 1% of NEPA customers are classified as industrial, 20% are commercial, and 79% are residential. The 1973/74 consumption was divided as follows: industrial – 41% (839 million KWH); commercial – 22% (448 million KWH) and residential – 37% (752 million KWH). Roughly half of all Nigerian power consumption is in the Lagos metropolitan area.

Since 1973, a uniform rate schedule has been applied to commercial and industrial customers throughout the country. This is part of the Federal Government's policy of dispersing industrial development. Before, lower rates in Lagos and other coastal areas, where fuel was relatively accessible, encouraged concentration of industry there. Two residential rate schedules are applied.

The NEPA rate structure is summarized in Appendix 2.1.

The Authority has over 11,000 employees. Engineers are educated both locally and abroad—increasingly in the United States. Technicians are trained principally at Kainji, where the line maintenance and protection curriculum includes hot-line work, and at Oshogbo (operations), Kaduna (diesels), and Lagos, where the Ijora Training School teaches mechanical maintenance, thermal operation, and electrical maintenance.

During the 1975-1980 period, NEPA plans to increase generating capacity from 690 MW to 1,740 MW, and to increase its distribution network from about 14,000 km to 20,000 km. Map 2.1 shows the major features of power system development through 1990.

NEPA has taken a conservative approach to setting its objectives for reserve capacity. Required reserve is set at a value that would permit servicing peak loads despite *simultaneous* failures of the largest hydraulic, thermal, and gas turbine generating units. As shown in table 2.5, required reserves are recalculated with the addition of new, larger generating units, rather than as a constant percentage of maximum demand.

New Thermal Capacity

Sapele Thermal Plant.—The four 120 MW, gas-fired, steam turbine generating units for this plant will be supplied by Brown-Boveri. Engineering is by Shawmont, a Canadian consortium of Shawinigan Engineering and Montreal Engineering. Phased construction will put the first 240 MW onstream in 1978-79, and the third 120 MW unit will be contributing power the following year. Final completion is expected in 1982. Expenditure from 1975-80 will be \$190 million.

Afam Extension.—By 1976, 100 MW will be added to the existing 55 MW of installed capacity at Afam. Estimated cost is over \$19 million.

Delta No. 2 Thermal Plant.—With installation of the sixth 20 MW General Electric gas turbine in July 1975, the second Delta plant at Ughelli added 120 MW of generating capacity to the 55 MW produced by the first Delta gas turbine station. The plants are fed oil-associated natural gas from the fields near Ughelli in Mid-Western State.

Other Thermal Projects.—Selected additional projects of a smaller scale or beginning late in the Third Plan period are summarized below as in the Plan document.

<i>Project</i>	<i>Third Plan Summary</i>
Lagos Thermal Plant (from 1978) (\$7.3 million)	This project covers the first phase of the development of a new thermal power generating station at Imore near Lagos. The provision is for feasibility and engineering studies and for site development.

Table 2.5.—NEPA load and capacity forecasts to 1985
(in megawatts)

Year ¹	Grid connected	Maximum Demand Isolated under- takings	NEPA national total	Available grid capacity	Surplus grid capacity ²	Required grid reserve	Excess or shortfall in reserve
1974	429	20	449	637	208	144	64
1975	498	21	519	658	160	156	4
1976	602	26	628	1,014	412	171	241
1977	769	9	778	1,091	322	171	151
1978	944	3	947	1,331	387	186	201
1979	1,129	1	1,130	1,563	434	272	162
1980	1,335	1	1,336	1,709	374	272	102
1981	1,544	1	1,545	1,825	281	272	9
1982	1,784	1	1,785	2,074	290	272	18
1983	2,060	1	2,061	2,324	264	272	(8)
1984	2,377	1	2,378	2,706	329	272	57
1985	2,743	1	2,744	3,272	529	395	134

1. Years ending March 31.

2. Available grid capacity less grid-connected maximum demand.

Source: National Electric Power Authority, Lagos.

Sokoto Diesel Plant (1976) (\$247, 000)	Installation of two diesel units at Sokoto with a total capacity of about 3 MW.
Isolated thermal plants (1976) (\$553, 000)	Provision of plant and equipment for reinforcement of isolated diesel plants including Kaduna and Maidu- guri diesel stations.
Kaduna Thermal Plant (from 1978) (\$3.2 million)	New oil-fired steam turbine generating station with net capacity above 348 MW.

New Hydroelectric Capacity

Kainji Extension.—Kainji Dam, on the Niger River, was completed in 1969. Although it was initially fitted with four 80 MW turbine generators, provision was made to accommodate additional turbines when demand justified. As of 1975, the \$40 million extension is almost half finished; two of the additional four 110 MW turbine generators are to be commissioned in 1976. Nominally rated at 120 MW, the new generators will be able to produce 110 MW throughout each year, but 120 MW during about 8 months of the year. When the project is completed in 1977–78, the original 320 MW capacity will have been more than doubled to 760 MW.

Shiroro Gorge.—Charles T. Main Consulting Engineers of Boston already have begun site surveys and engineering studies for the design of this 300 MW installation to be erected on the Kaduna River at a total cost of more than \$370 million, of which some \$240 million is expected to be spent by 1980. The cost of electromechanical equipment was estimated at \$179 million by NEPA planners (1973 prices) and switchyard electrical equipment was expected to

cost \$9.1 million. The project is to be completed in 1982.

Jebba.—Design of this 500 MW facility by Montreal Engineering also is beginning in 1975. Some \$48 million has been earmarked for design and civil works that will be undertaken during the Third Plan period. Cost estimates for electromechanical equipment and switchyard electrical apparatus were put at \$107 million and \$14 million, respectively.

Gongola River.—Justified and funded primarily as an agricultural development project, the Gongola Dam will be capable of producing 30–40 MW with the additional expenditure of \$16.5 million for turbine generators and related construction, switchgear, and grid feed. (The Jos–Maiduguri 132 KV transmission line to be completed in 1976 will pass within a few miles of the Gongola Dam site.)

Ikom, Makurdi, and Lokoja.—To help meet post 1980 power requirements, NEPA has identified dam sites at Ikom, Makurdi and Lokoja capable of delivering 400, 600, and 1,950 megawatts of hydroelectric power respectively. Hydrological and engineering studies and design are to be completed for all three during the Third Plan period, and construction of the Ikom Dam is to start by 1980. A sum of \$84 million has been earmarked for this phase of these projects.

Transmission Projects

Some 5,800 kilometers of new transmission lines will be needed by 1980 to connect additional generating stations to the national grid, to extend the grid to new localities, and to strengthen service to areas where mounting demand has saturated existing capacity.

The requirements aggregated in table 2.6 in-

clude more than 400 km of 132 KV lines added to the NEPA program just since formulation of the *Third National Development Plan*. Already, NEPA engineers have identified requirements for an additional 3,600 kms of lines to be constructed in the succeeding decade (table 2.7).

Highlights of the Third Plan portion of transmission system development are as follows.¹

New Generation Incorporation

Sapele-Benin 330 KV Line.—To integrate the new thermal plant at Sapele into the national grid, a 330 KV line covering approximately 50 km will be constructed from the Sapele Station to Benin at an estimated cost of \$11.4 million. Completion is scheduled for 1977.

Benin-Lagos 330 KV Line.—A double circuit 330 KV line will be constructed to serve transmission requirements from Benin to Lagos. The project is estimated to cost \$24.5 million and is due to be completed in 1978.

Benin-Onitsha 330 KV Line.—This project covers about 120 km of a second 330 KV line from the Benin substation to Onitsha. A sum of \$6.4 million has been earmarked for the project.

Kainji-Lagos 330 KV (Second Line).—This is a continuing project involving the construction of a second 330 KV line, with associated switching facilities, to satisfy additional transmission requirements from Kainji to Lagos. A total capital provision of \$11.7 million is earmarked for the completion of this project in 1975/76.

Jebba-Oshogbo-Ikeja 330 KV (Third Line).—This project will contribute significantly to improve supply reliability, especially in the Lagos area. The estimated total cost during the Third Plan period is \$4.3 million. Completion is scheduled for 1982-83.

Transmission Extensions and Improvements for Area Supply

Kaduna-Jos-Maiduguri-Numan-Ashaka 330 /132 KV Lines and Substation.—The 330 KV line being built from Kaduna to Jos will operate initially at 132 KV. The 132 KV line will be extended from Jos to Bauchi, Gombe, Numan, Ashaka, Biu and Maiduguri to accommodate the anticipated load growth in these areas and improve the quality of service. The estimated cost is \$19.7 million and the project is to be completed in 1976 or early 1977.

Kainji-Niamey² 330 /132 KV Line.—A new 330 KV line is to be constructed from Kainji to Birnin Kebbi where it will be stepped down to 132 KV line to transmit power to Sokoto and Niamey. This continuing project, which will cost \$16 million during the Plan period, will be completed by early 1977.

Kaduna-Kano 330 KV Line.—A single circuit line covering a length of about 266 km will be constructed from Kaduna to Kano. This route presently is operated at 132 KV. The allocation is \$15.5 million and completion is scheduled for 1978.

Jebba-Kaduna 330 KV (Second Line).—To accommodate the increasing load growth and improve the supply in this area a second 330 KV single circuit line will be built to connect Jebba to Kaduna at an estimated cost of \$9.4 million during the Third Plan period.

1. *Third National Development Plan*, Vol. 1, p. 179. Values are those given in the Third Plan, converted at ₦1 = \$1.645. While the Third Plan is the best source of comprehensive project data, NEPA officials have pointed out that relative project costs suggest some inaccuracies.

2. Niamey is in the Niger Republic; NEPA will build the line as far as the border crossing.

Table 2.6.—Summary of high voltage transmission lineage requirements, 1976-80¹

Line voltage (KV)	No. of circuits	Length (kms)	Investment cost (in millions of U.S. dollars) ²
Under contract by July, 1975:			
Major new lines			
330	1	1,130	49.9 ³
132	1	1,070	13.6 ³
Extensions and improvements			
330	—	242	
132	—	284	65.8
To be contracted after July 1975:			
Major new lines			
330	2	244	24.6
330	1	998	70.8
132	1	699	32.6
Extensions and improvements			
330	—	530	
132	—	622	144.2
Total		5,819	401.5

1. Years ending 31st March.

2. 1973 prices converted from Naira at ₦1 = \$1.645

3. Reflects only 1975 and later expenditures on projects begun in earlier years.

Source: National Electric Power Authority, Lagos.

Kano-Hadejia and Kano-Kankiya 132 KV Lines and Stations.—The 132 KV switching station at Kano will be extended to accommodate two additional 132 KV lines to serve Hadejia and Kankiya. These projects are part of the rural electrification effort and are estimated to cost \$6 million. Completion is scheduled for 1978.

Onitsha-Port Harcourt 330 KV Lines and Stations.—The 330 KV line has been rehabilitated and will be placed in service at 132 KV to connect the Aba, Port Harcourt, and Calabar areas and the Afam generating station to the grid. Additional transformers will be installed at the Onitsha substation. A 330/132 KV station is also to be built at Aba. The total cost of the project is estimated at \$12.2 million, and it will be completed in 1979.

Kano-Potiskum-Maiduguri 330 KV Line and Station.—A 330 KV single circuit line may be built from Kano to Maiduguri through Potiskum at an estimated cost of \$54.9 million; alternatively, this additional lineage may be routed through Jos and Gombe to Maiduguri.

Distribution System

In addition to extensions of the high voltage transmission network, some \$215 million will be spent for NEPA distribution system improvements and extensions ranging from 33 and 11 KV lines and 132/33 KV substations to new service connections. In main cities and towns, where consumer demand has outpaced growth in distribution capacity, the present system will be strengthened; the incidence of power interruptions will be reduced by additional feeds to areas previously served through single distribution links.

Due to the rapid growth of tropical vegetation along line rights-of-way, as well as to the incidence of vandalism noted earlier, NEPA conducts increasingly frequent inspections. The entire length of the high voltage transmission network is inspected monthly by the utility's Alouette II helicopter. To recognize subtler problems, such as towers missing fasteners—which are not apparent to airborne inspectors—NEPA is beginning to increase the frequency of ground patrols formerly made monthly. At the same time, the line maintenance department hopes to improve the efficiency of helicopter inspection by finding a dictation system that records speech clearly over engine noise.

NEPA operates eight work centers in the following four service regions:

<i>Service Region</i>	<i>Work Centers</i>
Lagos	Lagos, Oshogbo
Benin	Benin City, Onitsha, Oji
Kainji	Kainji, Kaduna
Aba	Aba

Table 2.7.—Summary of projected high voltage transmission lineage requirements for the Nigerian grid, 1980-1992

<i>Line Voltage (KV)</i>	<i>No. of circuits</i>	<i>Length (Kms)</i>	<i>Investment¹</i>
700	1	997	124.2
330	3	50	10.7
330	2	778	100.9
330	1	1,513	115.0
132 ²	2	170	9.5
132 ²	1	113	4.6
Total		3,621	364.9

1. In millions of U.S. dollars, converted from Naira at ₦ 1 = \$1.645 (1973 prices).

2. The lengths shown here represent only a small fraction of the 132 KV lineage that will be installed during this 12-year period, according to NEPA authorities.

Source: National Electric Power Authority, Lagos.

With system size increasing faster than maintenance capacity, NEPA is looking to improved communications and more mechanized operation to improve maintenance efficiency. The line maintenance department intends to equip its crews with vehicle-mounted and hand-held transceivers, with base stations to be established at each work center. Hydraulic bucket trucks will also speed maintenance operations.

Rural Electrification by NEPA

NEPA itself extends service to 30-40 additional towns each year as the national power grid expands, and it concurrently is underwriting rural electrification projects by contractors that will energize another 500 towns by 1980 at a cost of \$148.5 million.

The national utility has set a criterion of a 4% annual return on its capital cost for electrification of new areas, so that the full cost (without allowance for interest) would be amortized over 25 years. Many villages still too remote or having too low a consumer density to qualify for NEPA capitalization may be included in the States' individual electrification projects, or may try to finance locally the cost of electrification by NEPA.

NEPA planners expect that by 1980 the national grid will reach so far that the lower marginal cost of electrifying additional towns will almost always enable a qualifying rate of return. This would obviate State Governments' having to underwrite further electrification projects beyond this decade.

Two NEPA-contracted rural electrification projects, summarized in table 2.8, illustrate how new areas are added. Both projects began in 1975 and are to be completed in 1977.

The western project, designed and supervised

Table 2.8.—NEPA contracted rural electrification 1975–1977

	Western projects 25	Eastern projects 75
Number of towns	Kano, Kwara, North–Central, North–Eastern, North Western, Western	Benue Plateau, East–Central, Mid–Western, North Central, North Eastern, South Eastern
States involved		
132 KV transmission lines (km)	n.a.	460
132 KV Substations	5	4
Intertownship 33 and 11 KV lines (km) ¹	582	2,497
Town distribution lines (km) ¹	148	490 ²
Distribution transformers	65	240 ³
50 kva (33/.4 kv and 11/.4 kv)	18	67 ³
100 kva (33/.4 kv)	5	4
Diesel generators (1980 requirements)		
75 KW (415 V/50 Hz)	—	8
230 KW (415 V/50 Hz)	—	4

1. Centerline distances.

2. Estimate based on average requirements in the region.

3. Estimate based on additions to load.

Source: National Electric Power Authority, Lagos.

by GEPAC Consultants of Montreal, consists of three groups of towns, to be fed from three points on the NEPA grid.

The eastern project, engineered by Motor Columbus (Swiss), will feed 68 towns from the grid. Seven others, being in swampy areas not economically serviceable by transmission lines, will draw power from four diesel generator plants. Using combinations of the 75 KW, 230 KW, and 460 KW-size units on which NEPA is standardizing, these stations will have a combined capacity of 1,985 KW in 1980, to be increased to 2,750 KW by 1985.

Rural Electrification by States

To satisfy constituents impatient for electrical service but living in areas that do not meet NEPA criteria, the 12 Nigerian State Governments plan to spend \$235.6 million for rural electrification by 1980. Some of this work will be undertaken by NEPA with the States footing the bill. Other work is contracted directly by the State Governments in projects ranging from modest in scope to quite extensive.

One project in the sprawling North Eastern State will employ diesel power to electrify four districts not close to early grid extensions. The scope of the project may be judged from the requirements summarized below:

North–Eastern State electrification project

Equipment	Quantity
Diesel generator sets	
100 KVA	6
200 KVA	5
400 KVA	2
Power and distribution transformers	
100 KVA	27
200 KVA	8

400 KVA	2
Distribution line	
16 sq. mm. (Cu equivalent)	61 kms.
35 sq. mm. (Cu equivalent)	96 kms.
70 sq. mm. (Cu equivalent)	77 kms.

A slightly larger project is the \$6.8 million Rivers State scheme to serve some 30 additional villages with branches to the east and west from the Port Harcourt grid terminus. Intertownship lines (3–wire) total 390 kms., mostly carrying 33 KV. Distribution within the towns will require the following:

Item	Quantity
Distribution lines	
3–wire primary	100 kms.
4–wire secondary	135 kms.
Distribution transformers	
500 KVA (33/11 KV)	11
300 KVA (11/.415 KV)	2
50 KVA (33/.415 KV)	34
50 KVA (11/.415 KV)	90

Where towns are too widely separated to be linked by transmission lines to central generating plants, the more costly approach of installing individual power stations may be taken. North–Central State is equipping each of 15 towns with 400–500 KW of diesel generating capacity at a cost of \$16.5 million. Each will have two generators (two of 230 KW or one 175 KW plus one 230 KW), two 415 v/11 KV step–up transformers (500 KVA), and 500–800 KVA of distribution transformer capacity, mostly in 100 KVA sizes.

The above projects of course represent only a small part of what is a continuing program in these and other States, whose expenditures during the Third Plan are shown in table 2.9.

*Table 2.9.—Nigerian States' rural electrification in the
Third National Development Plan
(in millions of U.S. dollars)¹*

	1976 ²	1977	1978	1979	1980	Total ³
BENUE-PLATEAU STATE..... The program covers the electrification of Divisional headquarters and other towns including Nassarawa, Wase, Kanam, Takum, Zaki Biam, Vandeikya, Adikpo and Aliade.	1.6	3.3	4.9	4.9	4.9	19.7
EAST-CENTRAL STATE..... Divisional headquarters and other towns and villages will be electrified under the program.	1.6	3.3	4.9	3.3	3.3	16.5
KANO STATE..... Twenty towns will be electrified.	3.3	3.3	3.3	1.6	1.6	13.2
KWARA STATE..... Divisional headquarters and other towns and villages will be electrified.	1.6	3.3	6.6	6.6	6.6	24.7
LAGOS STATE..... The sum is for feasibility studies for the electrification of villages in Ikorodu, Epe and Badagry Divisions.	.3	—	—	—	—	.3
MID-WESTERN STATE..... Divisional headquarters and other towns will be electrified under the continu- ing program.	1.6	3.3	4.9	3.3	3.3	16.5
NORTH-CENTRAL STATE..... About 15 towns and villages will be electrified.	1.6	3.3	4.9	3.3	3.3	16.5
NORTH-EASTERN STATE..... Technical studies will be completed for the electrification of about 30 towns and villages during the Plan period.	3.3	4.9	8.2	8.2	8.2	32.9
NORTH-WESTERN STATE..... The sum has been provided for the electrification of 31 towns and villages	3.3	4.9	8.2	8.2	8.2	32.9
RIVERS STATE The Divisional headquarters and other towns and villages will be electrified.	1.6	1.6	3.3	3.3	3.3	13.2
SOUTH-EASTERN STATE..... The Divisional headquarters and 15 other towns will be supplied with electricity.	1.6	3.3	4.9	3.3	3.3	16.5
WESTERN STATE..... Work is nearing completion on the first phase involving 60 towns and villages. These allocations have been made for the progressive implementation of the second and third phases, involving a total of 193 towns and villages.	8.2	8.2	8.2	4.9	3.3	32.9
TOTALS ³	29.9	42.7	62.3	50.9	49.3	235.6

1. Converted at ₦ 1. = \$1.645.

2. Years ending March 31.

3. Will not equal sums due to rounding.

Source: *Third National Development Plan*.

Nigerian Electricity Supply Corporation (NESCO)

Supplying dependable electric power to the northern Benue-Plateau State since 1930, NESCO is the last privately-owned electric utility in Nigeria. NESCO generates most of its power from five hydroelectric installations (24 MW) and one diesel plant (4 MW). Originally founded to supply

the growing tin industry on the Jos plateau, NESCO also serves Jos and its environs, selling its power to the National Electric Power Authority, which in turn bills commercial and residential consumers.

NESCO customers credit the company with less than 24 hours of power interruption per year—mostly in 2-hour maintenance periods of which they are notified well in advance. Although the relatively small NESCO distribution system is not

tied to the NEPA grid, an interconnection doubtless will be made when the NEPA transmission line from Kaduna is extended through Jos on its way to Gombe and Maiduguri.

Meanwhile, having performed all of its own distribution system construction and maintenance, NESCO is equipped to undertake a NEPA rural electrification scheme that will extend from the present Jos-area system southwards toward Lafia and south-east to Keffi and Nasarawa. This program will energize some 20 towns along a transmission network totaling roughly 300 miles. The project is being entirely financed by a 3 million loan from the British Government; all equipment will be procured in the United Kingdom.

NESCO has experienced moderate growth in power sales due to increasing consumption by residential and commercial customers in the Jos area. Sales increased from 103 million KWH in 1973 to 120 million KWH in 1974. Anticipating further growth before the grid connection is made, NESCO has purchased three 1 MW Allen diesel generator sets. The tin industry continues, however, to be NESCO's primary customer; indeed, the utility reports that power sales are directly related to changes in the price of tin on the London Metal Market.

The only other prospect for expansion of NESCO sales lies in the possibility that it will be commissioned to supply roughly 5 MW for the operation of the new underground tin mine being developed at Ririwari in southernmost Kano State. This would require a substantial extension of the present NESCO transmission system. All of NESCO's commercial and residential customers are within 10 miles of the generating facilities which serve them, and tin industry clients are within a 20 mile radius. The expansion to Ririwari would involve a transmission of approximately 60 miles.

Electrical Inspectorate

The Electrical Inspectorate Division of the Ministry of Mines and Power is responsible for promulgation and enforcement of regulations and standards for electrical installations throughout Nigeria—whether public or private.

The Inspectorate staff of some 30 persons has been spread quite thin as the Nigerian power system has expanded and the number of privately operated power sets has multiplied in recent years. By 1978, however, the Division will have taken on additional personnel to staff Inspectorate offices in each of Nigeria's 12 States. Third Plan allocations for new buildings and equipment are close to \$7 million.

MARKETING APPROACHES

NEPA generally uses open, international tendering to obtain a wide choice of engineering expertise and systems suppliers for major projects. (Negotiated procurement occurs only in cases of exceptional urgency.) Requests for proposals are customarily published in *The Financial Times*, *The Engineering News Record*, and in the case of hydroelectric projects, *Water Power*. Terms of reference also are provided to foreign embassies in Lagos; the American Embassy cables terms of reference to the Department of Commerce in Washington, which publicizes it in *Commerce America* and *Commerce Business Daily*. This is, however, a time-consuming procedure which, if relied upon exclusively, could significantly reduce time available for bid preparation. NEPA generally follows IBRD (World Bank) bidding procedures for all such procurement, except that embassies of nonmember countries also are notified of projects not financed by IBRD.

Two to 3 months are allowed for tender submission. A minimum of 4 month's validity has been required to accommodate the several levels of consideration and review which must follow technical evaluation.

Engineering firms generally are given responsibility for supervising construction of the projects they design under a single contract.

NEPA customarily contracts separately for major elements of new energy systems. For example, the Sapele thermal project involves two or three civil works contracts and separate contracts for the boiler and boiler auxiliaries, turbine generators, switchgear, transformers, and elevators. For substations, separate contractors usually are responsible for civil works, transformers, switchgear, and communications equipment. Transmission line projects are given to prime contractors.

The Authority's concern for timely commissioning of new generation and transmission capacity is reflected in tight contracts which are explicit in terms of delays.

Having been plagued with losses of generating capacity due to maintenance problems, NEPA has been inclined to trade-off efficiency, technical advancement, and even cost rather heavily in favor of simplicity, safety, and maintainability. This has tended to result in specifications rather distant from the state-of-the-art in the United States. For example, Sapele will not have reheat capability, even at the sacrifice of the substantially higher operating efficiency possible. More costly double-walled construction may be specified in applications where U.S. engineers have used single walls for years. NEPA will entertain alternative proposals, but preferably in

addition to responsive bids submitted before the published deadline. The bidder whose only proposal is for an alternative to the specifications is likely to lose the business, and a retreat to specifications after the formal tender deadline is likely to be disallowed.

Nigerian affiliation is not required of bidders, although this is commonly practiced. It is, however, important to make technically qualified representatives available in Nigeria, at least at strategic points in the pre-award process. Firms offering new or alternative systems in particular are advised to begin spadework early—to acquaint decisionmakers with innovations and technical features well before they must be weighed competitively.

Probably the most salable feature of any proposal will be a good track record in timely completions.

As noted earlier, both IEC and BSS are commonly cited in NEPA terms of reference. Electrical Supply Regulations and Wiring Regulations are contained in Chapter 57 (Electricity) (1965 revision) of the *Laws of the Federation of Nigeria and Lagos*, available from the Government Printer, Lagos. (A reference copy is held by the Country Marketing Manager – Nigeria, Office of International Marketing, U.S. Department of Commerce, Washington, D.C. 20230.)

To reduce the size and diversity of its maintenance inventory, NEPA is attempting to standardize some of the materials used in quantity. Commonly used aluminum and steel-reinforced aluminum conductors are specified in detail in Appendix 2.2.

Import duties on electrical equipment are non-discriminatory.

Appendix 2.1.—National Electric Power Authority rate structure as of June 1975¹

SCHEDULE A – Single Phase Service Tariff

Applicable to all residential consumers and some small commercial consumers who will normally be connected to the Authority's single-phase 230-Volt supply. Biggest induction motor or welding transformer acceptable is 3 H.P. or 3 KVA. A small commercial consumer whose load exceeds 5 KVA will not be connected to the Authority's single-phase supply. Current, frequency, voltage and phase—Alternating Current, 50 Hertz, 230 Volts, single-phase.

CONSUMPTION per apartment * per month	AREA I Lagos, Jos, Enugu Port-Harcourt	AREA II All other undertakings
First 20 kwh or less	₦2 (\$3.29) ² min. charge	₦2 min. charge
Next 40 kwh at	3.75 kobo (6.17 ¢) per kwh	4.58k (7.53 ¢) per kwh
Next 40 kwh at	33.3 (5.48 ¢) per kwh	4.16k (6.84 ¢) per kwh
Next 100 kwh at	2.50k (4.11 ¢) per kwh	3.33k (5.48 ¢) per kwh
All over 200 kwh at	1.666k (2.74 ¢) per kwh	2.50k (4.11 ¢) per kwh

*Apartment—refers to a self-contained house or flat or each floor of a multi-storied house. The authority will ordinarily provide a meter for each apartment.

Penalty Charge for Welding Apparatus.—All welding apparatus connected at consumer's premises will be billed at an additional charge of ₦2 (\$3.29) per KVA or part thereof in-put to the machine per month unless the welding apparatus is connected through a motor-generator set. If the consumer has installed capacitors for power factor improvement, the extra charge will be proportionately reduced according to the degree of correction.

SCHEDULE B – Small Three-Phase Service Tariff (Up to 75 KVA load)

Applicable throughout Nigeria to small commercial/industrial consumer whose load does not exceed 75 KVA. Current, Frequency, Voltage and Phase—Alternating Current, 50 Hertz, 400 Volts three-phase 3 or 4 wires as required.

Tariff per Month:

Part (a): Power Demand Charge

First 5 KVA of power demand
Next 5 KVA at
All additional KVA at

No Charge
25k (41.125) per 100 VA or part thereof
₦2.50 (\$4.11) per KVA or part thereof

Part (b): Energy Charge

First 30 kwh or less
Next 40 kwh at
Next 40 kwh at
Next 100 kwh at
All over 200 kwh at

₦2 (\$3.29) (min. charge)
4.58k (7.53 ¢) per kwh
4.16k (6.84 ¢) per kwh
3.33k (5.48 ¢) per kwh
2.50k (4.11 ¢) per kwh

Determination of Demand Charge

The authority shall install maximum demand meter in the consumer's premises. Maximum Demand Meter will be read monthly at the scheduled meter reading date. The normal power demand is the highest single reading of the demand meter established during the billing period.

Minimum Charge: The minimum charge shall be ₦ 2.

Penalty Charge for Welding Apparatus.— All welding apparatus connected at consumer's premises will be billed at an additional charge of ₦ 2 per KVA or part thereof in-put to the machine per month unless the welding apparatus is connected through a motor-generator set. If the consumer has installed capacitors for power factor improvement, the extra charge will be proportionately reduced according to the degree of power factor correction.

SCHEDULE C — Large Three-Phase Service Tariff (Above 75KVA Load)

Applicable in all undertakings throughout the country to large commercial/industrial consumer whose load exceeds 75 KVA.

Current, Frequency, Phase and Voltage—Alternating Current, 50 Hertz, three-phase. The voltage may be 400 V; 3,300 V; 6,600 V; 11,000 V; 33,000 V; 66,000 V or 132,000 V.

Tariff per Month:

Part (a): Power Demand Charge	
First 75kVA of Demand or less	₦ 150 (\$246.75) (min. charge)
All additional kVA of Demand at	₦ 2 (\$3.29) per kVA or part thereof
Part (b): Energy Charge	
First 5,000 kwh at	3.33k (5.48¢) per kwh
Next 5,000 kwh at	2.91k (4.79¢) per kwh
Next 40,000 kwh at	2.50k (4.11¢) per kwh
Next 100,000 kwh at	2.08k (3.42¢) per kwh
Next 850,000 kwh at	1.666k (2.74¢) per kwh
All over 1,000,000 kwh at	1.416k (2.33¢) per kwh

There is discount on electricity bills of consumers supplied at high voltage as shown in the following table.

Supply Voltage	Discount
3300 V; 6600 V; 11000 V	2%
33000 V; 66000 V	3%
132,000 V	5%

Determination of Maximum Demand

The Authority shall install maximum demand meter in the consumer's premises. Maximum Demand Meter will be read monthly at the scheduled meter reading date. The normal power demand is the highest single reading of the demand meter established during the billing period.

Minimum Charge: The minimum charge shall be ₦ 150 per month.

CAPITAL CONTRIBUTION AND MINIMUM ANNUAL REVENUE AGREEMENT

A consumer whose power demand is such that the Authority must build new or extend existing power stations or transmission/distribution facilities to meet such power demand will be expected to either pay a capital contribution or guarantee the Authority a minimum annual revenue.

ADDITIONAL DATA

All classes of service are supplied 24 hours per day. Customer-generated electricity, used during utility interruptions or otherwise, must be fed from the supply side of the NEPA meter.

1. Rates in effect since October 1973. The official NEPA tariff includes service connection and other fees not shown here, as well as other conditions of service. The complete tariff is available from the National Electric Power Authority, 24/25 Marina, Lagos, Nigeria. Full tariff information also is held by the Country Marketing Manager - Nigeria, Office of International Marketing, U.S. Department of Commerce, Washington, D.C. 20230.

2. One Naira (₦ 1) = 100 kobo. U.S. equivalents calculated at official rate prevailing June 1975: ₦ 1 = \$1.645.

Appendix 2.2.—Technical data for ACSR and aluminum conductors

Code name	Nominal aluminum area	Equivalent copper area		Stranding and wire diameter				Overall diameter	
	mm ²	mm ²	inch ²	Aluminum		Steel			
				mm	inch	mm	inch	mm	inch
Rabbit	50	32.3	.05	6/3.35	6/.132	1/3.35	1/.132	10.05	.396
Dog	100	64.5	.10	6/4.72	6/.186	7/1.57	7/.062	14.15	.557
Wolf	150	96.8	.15	30/2.59	30/.102	7/2.59	7/.102	18.13	.714

Code Name	Aluminum		Area Steel		Total		Aluminum		Weight Steel		Total		Nominal breaking load	Maximum resistance at 20 °C
	mm ²	inch ²	mm ²	inch ²	mm ²	inch ²	kg /km		kg /km		kg /km		kg	ohm /km
Rabbit	52.88	.0820	8.81	.0137	61.70	.0956	145		60		214		1, 876	.5426
Dog	105.0	.1628	13.50	.0209	118.5	.1837	288		106		394		3, 335	.2733
Wolf	158.0	.2449	36.88	.0572	194.9	.3021	437		289		726		7, 056	.1828

Code Name	Equivalent copper area		Stranding and wire diameter		Approximate overall diameter		Total Area		Weight		Total		Nominal breaking load	Maximum dc resistance at 20 °C
	mm ²	inch ²	mm	inch	mm	inch	mm ²	inch ²	kg /km		kg /km		kg	ohm /km
Mosquito	22.6	.035	7/2.59	7/.102	7.8	.306	37.0	.05740	101		101		617	.7731
Earwig	48.4	.075	7/3.78	7/.149	11.4	.447	78.5	.1217	215		215		1, 218	.3645

Chapter 3

COMMUNICATIONS

HIGHLIGHTS

The entire communications sector in Nigeria is expected to undergo rapid and significant growth throughout the *Third National Development Plan* period, 1975–80. This growth will provide substantial marketing opportunities for newcomers as well as for firms already established in Nigeria.

A total of \$1.9 billion has been provided by the Third Plan to carry out over 70 large- and medium-scale communications projects, ranging from the purchase of telephones to the building of earth satellite stations (see table 3.1). The major portion will be the projected Federal Government expenditure of \$1.8 billion for the expansion and improvement of Nigeria's domestic communications system. Other major areas of emphasis will include more effectively linking Nigeria with the world through new and expanded telecommunications facilities, and extending and re-equipping radio and television stations throughout the country.

The development of the private sector is expected to provide many opportunities for increased sales to a more affluent public in product lines ranging from security devices to color television sets.

It is expected that virtually all (99%) of Nigerian needs for communications equipment and services will continue to be imported through 1980. Present suppliers, led by the international telecommunications companies already well-entrenched in Nigeria, will continue their dominance of the market—particularly its public sector. However, new-to-market firms also are expected to do well, especially in consumer items and in newer areas of State and Federal Government interest.

EQUIPMENT REQUIREMENTS

Up to 1975, most of the communications systems and equipment utilized in Nigeria have been of conventional types, and until fundamental communications requirements are better satisfied, procurement probably will continue to be technologically conservative. However, by late in the Third Plan period, Nigeria will be in a better position to exercise the interest of its farsighted planners in advanced, sophisticated systems of superior capacity and efficiency.

Under the Third Plan manual telephone exchanges will disappear by 1980. The existing automatic exchanges, partially made up of low-speed step-by-step Stowger equipment, would be gradually converted to completely crossbar models. The international networks of the Ministry of Communications (still known by its former initials, "the P&T," for posts and telegraphs) would employ the most advanced cables, utilizing cross-connections in place of the existing gas-pressurized mutrac cables. Attention would also be given to key phones rather than the conventional dial phones.

The Ministry of Communications also has given some indication that it is looking beyond the programs and objectives spelled out in the Third Plan. In a speech delivered to the International Telecommunications Union (ITU) in May 1975, the Director of Telecommunications of the Ministry of Communications, Mr. I.O.A. Lasode, pinpointed some of the areas which Nigeria might explore in the years ahead. Noting that telephonic and telegraphic messages are currently being conveyed by the low-speed analog mode of transmission, the Director pointed out that more reliable and faster digital and computerized communications systems will eventually be required. He foresaw that future traffic growth, facilitated by the development of millimeter and higher frequency transmission systems, should provide the capacity for new services such as telephone answering devices, conference television and high-speed data transmission between computer systems. An

Table 3.1.—Federal telecommunications projects expenditure
(in millions of U.S. dollars)¹

Year	Tele-communications	Nigerian external tele-communications	Total
1976	252.7	14.9	267.6
1977	385.1	26.4	411.5
1978	458.1	34.5	492.6
1979	447.1	23.7	470.8
1980	278.8	20.1	298.9
Total	1,821.8	119.6	1,941.4

1. Converted at the rate of ₦ 1 = \$1.645.
Source: *Third National Development Plan*.

integrated Pulse Code Modulation (PCM) digital transmission and switching trunk network within Nigeria was seen as a distinct possibility.

Detailed sector development plans are discussed in the next section, along with general equipment and system requirements. However, usage trends and sales prospects for selected products are summarized in the paragraphs below.

Switches.—Large central telephone exchanges averaging about 5,000 lines are likely to be the rule in Nigeria at least until 1985, when a projected 2,500,000 subscriber lines are expected to be in operation.

In keeping with the policy established under the Third Plan, the P&T will replace its manual step-by-step switchgear with automatic common-control cross-bar switching equipment. Although automatic common-control solid-state switchgear probably will continue to be installed after 1980, the P&T reportedly is considering installation of more advanced electronic switchgear, including bubble memories and holographic systems. A decision by the P&T to go to electronic switching would constitute an excellent trade opportunity for U.S. firms, since the United States has a technological advantage in sophisticated electronic exchanges.

Prospective American suppliers to the Nigerian market should keep in mind that the Ministry of Communications has adopted the European R-2 signalling standards. Moreover, in accordance with European practice, signalling equipment in Nigeria is usually an integral part of basic central office equipment.

Private Branch Exchange Equipment (PBX and PABX).—Although a P&T monopoly, the significant PBX market in Nigeria will likely continue to see a rapid growth as long as central exchanges remain problem-ridden. It has been estimated that in Lagos alone there are more PBXs than in any equivalent area in the world. Cross-bar PABX exchanges with less than 1,000 lines are expected to remain the most popular type of unit sold through 1980. Manual branch exchanges of a similar capacity also will make a strong showing. New entrants to the market can expect stiff competition from the international telecommunications giants which currently sell their own brands in Nigeria. ITT supplies about 40% of the PABX market, while GTE supplies most of the manual exchanges. Other suppliers include GEC, Siemens, Hitachi, Ericsson, Nippon Electric, Plessey and Philips.

Point-to-Point Communications Equipment.—HF/SSB radiotelephone is the most popular type of radio communications equipment sold in Nigeria's rural areas. Sales in 1975 are projected at over 6,000 units. Motorola currently has about 80% of the market, with Pye of the United Kingdom providing the main competition. Other

suppliers include Storno of Denmark; Dymar, Redifon and Racal of the United Kingdom; and Northern Radio of the United States.

Short-distance VHF-FM radiotelephone equipment also holds a considerable market in Nigeria. Motorola, Pye and ITT lead the extensive list of sellers.

VHF-FM multiplexers, usually with no more than a 60-channel capacity, are becoming more frequently used. Motorola and GTE are the main suppliers of multiplexers.

Data Communications Equipment.—Virtually no data communications equipment other than low speed modems are presently being sold in Nigeria. After 1980, by which time facilities are expected to have improved considerably, a market may emerge for electronic data circuit switches, electronic message switches, packet switches, and data concentrators.

Mobile Radio Communications Equipment.—There is a good and growing market for most types of mobile radio communications equipment. All frequency ranges below 450 MHz are used except very low and medium frequency. Both the tactical (military and police) and general purpose radio sectors are likely to experience sizable growth throughout the 1975-85 period. Excellent sales opportunities existed in 1975 for dispatch and mobile land and marine systems.

Numerous sales of two-way dispatch models are foreseen—to both the Nigerian police and the National Electric Power Authority and other industrial users. VHF ship-to-shore dispatch models are also likely to increase in popularity, especially as the ports become more congested. The Nigerian Board of Customs and Excise will likewise prove to be a good customer for portable VHF equipment, as well as for long-distance HF/SSB systems. All radio equipment aboard ships must meet ITU minimum technical standards.

One-way signalling or paging systems are becoming popular with local business firms. The government seldom has used this technique but is expected to do so with increasing frequency. In general, tone-only devices are preferred over tone-voice models. ITT is the major supplier, with about 70% of the market.

Microwave Components.—A wide range of microwave components is being used in Nigeria. The large international telecommunications firms produce or purchase their needs in the country of origin. System components needed by the P&T and NET (Nigerian External Telecommunications Ltd.) are obtained locally from the suppliers' agents.

Non-Laboratory Communications Test Equipment.—Demand for test equipment will rise quickly as the P&T and NET expand the present telecommunications network in accordance with

the Third Plan. There are no local manufacturers of test equipment at present. Among the leading suppliers to local firms have been Hewlett-Packard, Tektronix, and Sierra, all of the United States. European suppliers have included Marconi of England, and Wendel Goldermann and Rohde & Schwarz, both of West Germany.

Amateur Radio Equipment.—The Federal Government has banned all ham radios.

Telemetering Systems.—Several of the international oil companies operating in Nigeria reportedly use telemetering devices, but none are sold locally.

Radar and Navigational Aids.—See Chapter 9 on Aviation.

Electric and Electronic Alarm and Signal Systems Devices.—Several companies which specialize in various types of alarm and signalling equipment in Nigeria have sprung up in recent years. Among the more prominent firms are Victor Vanni Security Systems, Sentrycom and Stronghold (Nigeria) Ltd. All act as distributors for foreign suppliers. They are confident the market will grow steadily. Most of the equipment currently sold in Nigeria comes from Britain: Chubb, A.K.A., Selman, and Marconi. However, Brown Boveri and several Japanese companies are also selling their products in Nigeria. Gulf Industries, a U.S. firm, also sells alarm systems. There is interest in other American product lines, provided the products are competitively priced. A potentially large market in Nigeria is seen for central digital alarm systems and various remote sensing devices, such as those for counterfeit money detection.

Intercom and Public Address Equipment.—Intercom systems are rising in popularity. The market in 1975 was small but is growing steadily. At present, ITT supplies about 75% of the market, with Philips and Unipex of Japan supplying much of the remainder.

The demand for public address equipment is smaller, but it is increasing. Philips, followed by RCF of Italy, dominates the current market.

Philips also leads the way in microphones and microphone cable, but some local electrical and communications equipment distributors are seeking new suppliers to meet the growing demand for such equipment.

Closed-Circuit Television (CCTV).—The Postal Services Division, under the jurisdiction of the Ministry of Communications, plans to spend about \$241 million under the Third Plan to improve the existing postal services. While approximately \$33 million of the \$241 million will be devoted to the mechanization of such services, the balance will be used to purchase CCTV systems for 42 post offices. Tender for the CCTV facilities was expected by the end of 1975.

In addition to the opportunity described above and those to be derived from State and Federal

TV-radio expansion plans, there may be a modest CCTV market through 1980 among Nigeria's advanced educational institutions (particularly its six major universities). The University of Nigeria at Nsukka is actively seeking potential suppliers, and Benue-Plateau State has announced plans to purchase closed-circuit television equipment. Presently, the only locally established suppliers of such equipment appear to be GEC-Marconi, Philips, and Thomson-CSF.

Facsimile Equipment.—An unspecified amount of facsimile systems equipment is expected to be purchased by the P&T. Muirhead of the United Kingdom, represented by Communications Associates of Nigeria Limited (COMSAC) has shown interest in supplying the equipment.

COMPETITION

As stated previously, most of Nigeria's communications equipment and supplies are imported. There are no domestic manufacturers of communications apparatus and only one assembler: Maiden Electronics Works, Ltd. Maiden, which has been in existence for less than 10 years, assembles television and radio sets from kits imported from Pye and from Japanese manufacturers. Much of its business, however, revolves around its activities as a sales distributor for consumer communications equipment.

Foreign competition is extremely intense in Nigeria. U.S. manufacturers not only have to compete with major suppliers from all areas of the world but, in many cases, must comply with equipment standards different from those in the United States. Competition in sales to specific end users is discussed in the following sector analysis.

SECTOR ANALYSIS

Domestic Communications

The telephone population in Nigeria increased at an annual rate of 12% from 1970 to 1974, rising from 70,000 to 109,000. Then, in 1975, the telephone population reached 175,000, a 60% increase over the previous year. However, telephone density remains extremely low (about 2.3 phones per 1,000). Moreover, the network does not meet the requirements of the increasing number of industrial and commercial users.

The current network has approximately 52,000 subscriber lines using a mix of manual and automatic crossbar exchanges.

The network's inadequate service is not, however, only attributed to its relatively small capacity but to the nonstandardization of its

switching equipment and the limited number of trained personnel. Of 20 automatic exchanges installed in the early 1970's, only about 25% are in operation, resulting in an unused line capacity of some 30,000 lines. The heart of the problem lies in the incompatibility of the new and previously installed exchanges. Unfortunately, such shortcomings in the domestic communications network are not uncommon. However, the Government is well aware of the problems, and through the *Third National Development Plan*, it has initiated a program to combat poor policy formulation and under-investment in internal communications facilities and to increase the number of qualified technicians.

Federal Government responsibility for overseeing and operating most of the country's internal telecommunications network rests with the Ministry of Communications, commonly known under its older name of Post and Telegraphs (P&T). The Ministry is expected to be reorganized during the Third Plan period into a government-owned corporation which is expected to improve project implementation and increase productivity and efficiency. The existing responsibilities of the Research, Technical and Planning Divisions of the Ministry are expected to be expanded under the reorganization. New functions will include conducting studies on methods for insuring the efficient functioning of new plants and equipment under local conditions, rectifying nonstandardization of existing equipment, insuring compatibility of future equipment and rectifying the serious deficiency of adequately trained manpower at the engineering and technical levels.

Telecommunications training facilities at Oshodi, Ibadan, Kaduna and Enugu will be geared to meet the long-term labor requirements of the Ministry. In the interim, the Government will import the necessary expertise to manage and run the system.

The Telephone System

The major emphasis of the Third Plan will be to greatly extend and improve Nigeria's telephone system. The program involves the installation of automatic exchanges in 51 main centers of the country by 1980, making available 500,000 additional telephone lines. By the time it is completed, about 16% of total subscriber capacity will be provided to rural areas. To reach this ambitious target, \$656 million has been earmarked.

One of the projects already is underway. In 1975, International Telephone and Telegraph (Nig.) Ltd., jointly with the Swedish firm LM-Ericsson, won a contract worth over \$100 million to construct 33 new automatic exchange facilities

capable of handling 76,000 subscriber lines. When toll lines and cross-connecting facilities are included, approximately 152,000 lines will be put into operation. ITT will do about 90% of the work, while Ericsson will be responsible for installing the exchanges for Rivers, East-Central and South-Eastern States. The program is expected to be completed in late 1976 or early 1977. Most of ITT's equipment is to come from its European subsidiaries, BTC of Antwerp and Face of Milan.

Future contracts awarded during the Third Plan period are likely to go to the international telecommunications firms which have been involved in Nigeria's telecommunications network construction, i.e., GTE, GEC, Siemens, Philips, ITT, and LM-Ericsson.

Over \$500 million is allocated under the Third Plan to purchase and install long-distance communications equipment. A large portion will be devoted to the expansion of the existing national microwave radio system, originally installed by GEC. This will be accomplished through the addition of radio frequency channels capable of carrying telephone and television signals. Additionally, 219 radio and line carrier routes will be established to link up with the new telephones; coaxial cable links between Lagos and the State capitals would be installed; and about 20,000 multiplex channels are to be provided for the expanded system. By July 1975, contracts totaling about \$16 million were awarded to GTE and to Oki of Japan to construct about 20 of the new radio and line carrier routes.

Under the Third Plan, the P&T will spend about \$352 million to replace outmoded external plants and provide external line plants and distribution cable to connect the telephone exchanges to customers' premises. Overall project will consist of the purchase of some 10,000 kilometers of sheathed cable and 3,000 kilometers of duct routes in addition to phasing out overhead cables in the Lagos area.

The Third Plan also provides for the expenditure of \$82.2 million for customer communications equipment; the sale of which is presently a P&T monopoly. The funds are to be used to acquire over 1 million telephone handsets and 8,000 phone booths and to install private manual and automatic branch exchanges. Most of the new customer equipment (except possibly the booths) is expected to be supplied by the larger international firms. The most popular handsets come from GEC, ITT, Ericsson, Philips, and Pye (now 85% Philips-owned).

Primary and secondary power supplies are also expected to be constructed under the Third Plan. The project, estimated to cost \$34 million, includes the construction of about 250 power generation plants with capacities ranging from 6.5

KVA to 200 KVA. They will serve as standby power sources for the new telephone exchanges and transmission stations, and primary sources for the proposed radio terminals and repeater stations. Although the project is slated to begin in 1976, most construction should take place in 1978 and 1979.

Telex

Ambitious development and expansion of telex facilities are planned for the next 4 years. Telex exchanges have been proposed for 13 locations, including all State capitals, to provide 6,200 additional telex working lines. The cost of this expansion has been estimated at \$56 million. In addition, \$41 million has been earmarked for the purchase and installation of low-speed teleprinters for subscribers at each of the 13 points.

The present system, constructed in the early 1970's, includes 16 main exchanges with about 1,000 subscribers. Siemens of West Germany, which installed the original system, has already been awarded a \$24.5 million contract to put in 3,020 new lines. Work is to be completed by October 1976. The installation of cables and transmitters for interlinks between exchanges is not being done by Siemens but rather by GEC and Sumitomo of Japan.

It is not known who will supply the required teleprinters. Siemens would appear to enjoy an advantage at least until 1980, when medium- and high-speed teleprinters will likely be procured to supplement the current system. In the teleprinter market in Nigeria, GNT of the United Kingdom is Siemens' chief competitor; Singer International is the only other major supplier.

Several building projects, involving workshops, training centers, staff quarters, storage facilities, office accommodations, and a research and development center, also will be undertaken. Construction costs are expected to total \$30 million.

The prime contact for prospective vendors and consultants to P&T is the Permanent Secretary, Ministry of Communications, Moloney Street, Lagos.

International Telecommunications

While the Ministry of Communications has responsibility for Nigeria's domestic telecommunications system, the country's international telecommunications services are provided by Nigerian External Telecommunications, Limited (NET). This Federal agency was formerly associated with Cable and Wireless of the United Kingdom.

The Federal Government has allotted NET \$120 million to carry out a wide range of programs during the Third Plan period. Among the major projects already underway is the installation of a second antenna at the Lanlate earth satellite station. The present antenna works into the Intelsat IV satellite over the Atlantic Ocean. The second antenna will be directed at the Indian Ocean satellite, and upon its completion in late 1975, will enable Nigeria to communicate directly with the East. Communications to Asian nations presently are routed via Europe. The second antenna, like the first put into operation in 1970, is being built by GTE, International Inc. and will consist of a 98-foot disk-shaped antenna mounted on top of a 16-foot high circular concrete base. The antenna will be linked with NET headquarters in Lagos by microwave relay stations.

Another Third Plan project, already completed by Nippon Electric Co. of Japan, has provided single channel per carrier, pulse code modulation, multiple access, demand assignment equipment (SPADE) for the first antenna of the Lanlate Station. A SPADE configuration will also be installed for the second antenna.

A major NET project—the \$13 million Second Gateway Terminal—will involve the construction of another earth satellite station in the northern part of the country. The station is to be capable of handling public telephone, telegraph and telex traffic and international television programs. The project is currently in the preliminary planning stage and could be tendered during 1976. A \$5.8 million microwave link between the second earth satellite station and the switching center complex will also be built.

Associated NET projects for northern Nigeria include: a new computerized telex switching center (estimated cost, \$5.8 million); a computerized telegraph/data switching center to facilitate the handling of telex services from the north (at a cost of \$4 million); and facilities and equipment for an international telephone switching center (at a total cost of \$7.4 million). None of these projects is expected to get underway until construction of the second earth satellite station has begun.

Contracts were expected to be awarded by the end of 1975 for a similar set of projects involving the creation of such facilities at NET headquarters at Necom House in Lagos. The computerized telex exchange is anticipated to cost over \$3 million and will increase the number of trunks from 80 to 300. The telegraph/data switching center (almost \$6 million) will offer services to both public and private subscribers and will be connected via microwave to other telegraph centers. It also will have the capability to handle transit traffic between countries. The automatic telephone switching center at Necom

House is expected to be completed in 1980 at an estimated cost of \$2.5 million.

An additional project underway in 1975 is the Nigeria-Dahomey microwave link, with GTE as the contractor. The link will replace the existing narrow-band radio connection between Lagos and Cotonou with the wideband transmission standard required for interconnecting with the proposed Pan African microwave network along the west coast of Africa. The link will not only enable high quality telephone communication between Lagos and points in other West African nations, but will also place Nigeria in a position to offer its Lanlate earth station as a transit facility for telephone services between West African countries and the rest of the world.

Funds totaling \$8.2 million are allocated for a troposcatter link between the two earth satellite stations. There is now a strong possibility the link will be microwave rather than troposcatter. In either case, little activity is likely before the latter half of 1976.

The Third Plan includes two projects to link proposed NET international television and telephone facilities with those existing or planned by the P&T. The first project involves an expected expenditure of less than \$1 million for the purchase and installation of cable to connect the 4-wire ITSC (International Telephone Switching Center) in NET's Necom House to the P&T trunk exchange in Lagos. This project is scheduled to begin by early 1976. The second project is to link the proposed NET complex of switching centers and international television facilities with the planned P&T national television networks by microwave and/or coaxial cable. Total project cost is estimated at \$6.6 million, with actual construction not likely to start before 1977.

A more distant Third Plan project, to begin 1978 or later, calls for laying a submarine cable connecting Lagos to the Abidjan-France cable. This cable will provide greater routing diversity and serve as a back-up system to be used in the event of failure or saturation of the earth satellite stations. Project cost has been estimated at \$10.3 million with tenders likely to go out in late 1976 or 1977.

Three sizable building construction projects will be carried out or continued during 1975-80 to better house NET's technical, operational and administrative services. The most important facility is the 39-story Necom House currently being built by Costain at a site on the Marina in downtown Lagos. When completed in June 1977, NET's new operations headquarters will be the tallest building in Nigeria. A similar facility, to be built at the second earth satellite station, is designed to house its technical, operational and administrative facilities; projected cost is \$12.3 million. Construction is expected to start some-

time in 1977. Finally, the *Third National Development Plan* allocates \$10.3 million for additional staff quarters at Victoria Island (Lagos), Lanlate and the Second Gateway Terminal. Contracts for construction of the Victoria Island and Lanlate complexes were to have been announced by presstime, with plans for the facilities at the Second Gateway Terminal postponed until after plans for the operations center take a more concrete form.

A relatively minor project, costing an estimated \$500,000 involves equipping an Electronic Standards and Equipment Calibrating Center in NET's new headquarters in Lagos. The Center would be equipped with standard reference test equipment and repair apparatus which would be calibrated to meet international specifications. Tender is likely in 1976.

Additional information concerning specific projects may be obtained by contacting the General Manager, Nigerian External Telecommunications Limited, Marina, Lagos.

Radio and Television Broadcasting

The Federal Ministry of Information, and its semi-autonomous statutory corporation, the Nigerian Broadcasting Corporation (NBC), have central responsibility for the development and operation of national radio and television services and facilities owned by the Federal Government. The Broadcasting Organization of Nigeria (BON), made up of representatives from the Federal Ministry of Information, the NBC, and each of the State Ministries of Information, acts as a national coordinating body for television and radio services.

Public radio transmission is still in its infancy. At present, national radio coverage is limited to a NBC station broadcasting on a single frequency. At the State level there are only three stations, one at Enugu serving East-Central State, one in Ibadan, Western State, and a third in Kaduna, North-Central State, serving the six northern States.

Improved national radio coverage will result from a \$37-million expansion project launched in early 1974. The project, being executed by a Japanese-European consortium (Nippon Electric Company and Brown Boveri), calls for the establishment of complete radio broadcasting centers in each of the 12 State capitals; these will be equipped with medium-wave transmitters and supplementary short-wave units where necessary. In addition, the NBC's international service, Voice of Nigeria, will receive three 500 kw transmitters in place of the existing 100 kw models. Nippon Electric will supply 22

transmitters, antennae and studio equipment for the domestic projects, while Brown Boveri is responsible for the Voice of Nigeria transmitters and antennae. By the NBC timetable, all equipment is scheduled to be functioning by the end of 1976; indications are, however, that it may take longer.

Nationwide transmission is still undeveloped; NBC coverage is limited to the southwestern corner of the country. State television services are operated by Benue-Plateau, East-Central, Mid-Western, North-Central, Kano, Western and Rivers States.

The Third National Development Plan.—Nigeria's radio and television facilities, will receive a big boost under the Third Plan with a total government allocation of \$392 million, of which \$290 million will be spent by the Federal Government and the remainder by the 12 States (see table 3.2).

Among broadcast communications projects, the highlight of the Third Plan is a \$202-million program to convert the Federal television network (NBC-TV) from black-and-white to color, and expand its television service into a nationwide network. The first stage will involve the installation of studio and transmitting equipment in Lagos in early 1976. That project is nearly completed, with Siemens of West Germany providing the system. A decision has been made to go ahead with the PAL color system in preference to the French SECAM or American NAB system. Future contracts (not likely before 1976) will be awarded on the basis of open international tender. Eventually, a network of 20 transmitting stations and production centers will be established throughout the nation. Plans for linking the proposed stations are still in the initial stages with use of a new earth satellite station or tethered, helium-filled aerostats being seriously considered. Further details can be obtained by contacting the Chief Engineer, NBC-Radio and Television, Alagbon Close, Lagos; the Chief Contracting Officer, NBC, at the same address, or the Director of Television, NBC, Victoria Island, Lagos.

In addition to the above program, the Federal Government will be spending close to \$10 million for the development of the national radio network. The funds will be committed to the installation of a second (FM) channel and the construction and procurement of necessary facilities and equipment in each of the State headquarters. A tender incorporating all equipment and installation needs in one package is expected to go out for bid sometime in 1976. In addition, some \$7.1 million has been earmarked for remote broadcast and recording equipment (including mobile vans) for NBC radio and television stations throughout the country.

State Development Plans.—Aside from NBC's various development programs, virtually every State in the country plans to install or expand its own radio facilities during the Third Plan period.

Probably the most important broadcasting service in Nigeria is that of the Kaduna-based Broadcasting Corporation of Northern Nigeria (NNBC). Established in 1961, and for several years associated with EMI and Granada Television of the United Kingdom, NNBC serves all six northern States with television and radio service. In 1975, NNBC's employees numbered over 700, and its 1975/76 operating budget totaled \$1.9 million.

Faced with increasing competition from the rapidly developing State broadcasting services and the Federal NBC's expansion of its radio and television broadcasting to the north, NNBC embarked upon its own development program. Financed by the six northern State governments, NNBC is currently installing new microwave equipment, supplied by Microwave Associates through its U.K. subsidiary. It also plans to go to color television, with equipment likely to be purchased in 1976. To improve its radio service NNBC is considering the purchase of new transmitters; previous purchases came from Brown Boveri of Switzerland, from Gates of the United States (now the Broadcast Product Division of Harris Industries), and from the United Kingdom. It is also interested in new studio sound equipment, such as tape recorders, turntables and microphones.

NNBC has had several contacts with U.S. firms and reports it is looking for more. Inquiries can initially be directed to the Chief Engineer, Broadcasting Corporation of Northern Nigeria, Ahmadu Bello Road, Kaduna, North-Central State.

Benue-Plateau State will expend approximately \$4 million to construct and equip its radio and television station.

East-Central State plans to complete the reactivation of its East-Central Broadcasting Service damaged during the civil war. The ambitious program involves the following projects: installation of one medium wave transmitter for Enugu; establishment of a two-way microwave link system; installation of three TV translator/transmitters; purchase of two Radio remote broadcast vans; procurement of equipment for six urban broadcasting transmitting stations; purchase of film equipment for the film unit; purchase of general engineering workshop equipment; and construction of several buildings for administration and staff housing. Inquiries concerning the above program can be addressed to the Director-General, E.C.B.S., Enugu, East-Central State, Nigeria.

Kwara State plans construction of a

radio/television complex at Ilorin, with booster stations at Egbe, Lokoja and Ayangbe-Oshadamu. Total costs are estimated at \$12.8 million.

Lagos State intends to build its own radio and television station at a total cost of \$6.1 million.

In Mid-Western State the Mid-West Broadcasting Corporation will spend approximately \$3.3 million to add a radio station to its existing television service. It will also construct a number of booster stations to extend its TV coverage to six other States. North-Central State proposes to extend the Broadcasting Company of Northern Nigeria's CATV services to the northern and southern parts of the State at an estimated cost of \$2.5 million.

North-Eastern State, presently linked with NNBC will establish a radio/television station which will involve the construction of offices and studios; installation of a transmitter, tower, antennae and feeders, interconnecting cables and other communications equipment; plus the provision of standby generating plants. Total cost is estimated at \$8.8 million.

North-Western State, which awarded a \$5 million contract to RCA in January 1975 for the supply and installation of color television equipment, will press ahead with Phase II of its television service expansion program. TV coverage will be extended over much of the State's vast territory. Total costs are projected at \$19.7 million.

Rivers State will purchase additional equipment to extend radio and television coverage to all parts of the State with an allocation of \$8.2 million during the Third Plan period. Neighboring South-Eastern State has earmarked \$10.7 million for the installation of a full complement of radio and television services within its borders.

Finally, Western State, which owns and operates WNBS-Radio and WNTV-Television, intends to provide \$15 million for: (a) the installation of medium-wave radio and television transmitters at Okitipupa, Abeokuta, and Aba/Agunrege; (b) improvement to the medium- and short-wave transmitters at Abafon, Lagos and Ibadan and the relay equipment to the above cities; (c) the provision of small television boosters at Omuo Ifon, Ondo and Ikare to supplement the main stations; (d) the construction and equipping of offices and staff quarters in Ibadan and Lagos (e) the establishment of two television outside broadcasting units and the purchase of four remote audio broadcasting vans and three radio cars; (f) the construction of a film block at Ibadan; and (g) the introduction of experimental color television, including two color cameras, video tape recorders and two color monitors.

The Western State-owned public corporation, headquartered in Ibadan operated radio service in

1975 using one short wave and four medium frequencies (with another medium wave station under construction) and four television channels.

In 1975, radio and television transmissions covered about 60% of Western State and extended into adjacent Lagos State, including the Federal capital of Lagos.

Further information concerning these State programs can be obtained by contacting either the Chief Information Officer or the Permanent Secretary at the respective State Ministries of Information at each State capital. Where a publicly-owned State or regional (such as for the Broadcasting Company of Northern Nigeria in Kaduna) broadcasting service or company is involved, inquiries can be made to the Directors-General.

The equipment suppliers most active in the Nigerian radio and television market in 1975 appear to be Pye-TVT (in association with Philips), Redifon, Siemens, Nippon Electric, EMI Sound and Vision, and Thomson-CSF. Among U.S. suppliers, RCA Corporation and Microwave Associates have made some recent inroads, especially in the Northern States, and the Ampex Corporation is a major supplier of tape equipment. Much of the original (1962) NBC-TV broadcast equipment is of RCA manufacture. The original NBC-Radio transmission network was put in by Gates Radio.

Competition for new business is likely to be very stiff, especially from firms which are established in the Nigerian communications market. For example, of eight TV transmission systems built in Nigeria to date, five have been purchased from Pye. A serious bid for sales will require persistent on-the-spot representation.

Consumer Electronics

No official statistics are available on the consumer goods side of the radio-television market. The best available estimates indicate that in mid-1975 there were roughly 120,000 television and 4 million radio receivers in use in Nigeria. The television market is estimated to be growing at 20,000 units a year, while approximately 420,000 radios (75% of which are transistor models) are likely to be sold this year. Leading suppliers of television sets in recent years have been (in descending order) National, Sanyo and Philips. Collectively they account for over half of the market, with other Japanese models making up most of the remainder. In the radio market, leading suppliers, each with about 25% of the market, were Philips and National. The rest of the market was divided between Grundig of West Germany and numerous small suppliers from Japan, Taiwan, Singapore, Hong Kong and India.

In the associated record-player market current

annual demand is approximately 260,000 units: stereo 200,000; and monophonic 60,000. Leading suppliers in 1975 were Philips, Garrard (stereo), National, Kenwood, Sansui and other Japanese brands.

MARKETING APPROACHES

Nigeria has adopted the radio and television equipment standards established by the International Radio Consultative Committee (CCIR) and the International Telephone and Telegraph Consultative Committee (CCITT) of the International Telecommunications Union. In determining whether American manufactured equipment is suitable, U.S. exporters should check the CCIR

and CCITT handbooks. Nigerian television uses 625 lines, 50 hertz.

The market for U.S. communications equipment can be expected to grow significantly during the course of the *Third National Development Plan* and beyond 1980. The United States Department of Commerce, in cooperation with the American Embassy, is planning to hold a Technical Sales Seminar on Modern Telecommunications Systems in September 1976 in Lagos. Considerable interest already has been expressed, both in the United States and in Nigeria, in this trade promotion event. Commerce expects a large turnout from the Nigeria Government and business community.

For further information interested American firms should contact the Country Marketing Manager/ Nigeria, Africa Division, U.S. Department of Commerce, Washington, D.C. 20230.

Chapter 4

PETROLEUM

HIGHLIGHTS

The Nigerian petroleum industry continues to offer a substantial market for American equipment and services, despite the recent waning in Nigerian oil production. Development work is continuing, and the Nigerian National Oil Corporation plans some \$165 million worth of exploration activity during the 1975-80 period. Nigeria also will be constructing additional refinery capacity totaling 810,000 barrels per day (bpd) through 1980 if plans materialize. Two natural gas liquefaction plants and a petrochemical plant of 300,000-ton capacity are planned to consume the 2 billion cubic feet of natural gas now flared daily in Nigeria.

Nigeria's only existing refinery, a 60,000 bpd installation at Port Harcourt, has employed the technical services of British Petroleum, which has performed all refinery procurement. This technical service contract expired in 1975 which may open the door to American firms seeking to improve their sales to the growing Nigerian refining industry in the following years.

Nigerian consumption of petroleum products has been increasing dramatically, reflecting the pace of industrial expansion, motor vehicle sales and increased aviation and shipping activity. Total consumption rose from 17.5 million barrels in 1973 to 20.2 million barrels in 1974 and is projected to approach 50 million by 1980 (see table 4.1). Motor fuel leads the product growth list; from 1973 to 1974 consumption of premium gasoline jumped 28% to reach 5.3 million barrels, aviation gasoline consumption increased 27% to 35,000 barrels. At smaller volume levels, sales of diesel fuel and residual fuel oils for bunkers increased 70% and 40%, respectively.

This growth in demand for petroleum products has severely strained the Nigerian distribution system, and the Government is taking steps to alleviate petroleum shortages in many parts of Nigeria. Construction of new refineries and product pipelines will be relied upon for the eventual solution to Nigeria's distribution problems. Rail transport does not promise any early relief; a rail tank car now takes 30 or 40 days to make a round trip from Lagos to Kano—a distance of roughly 700 miles. Because the retail price of gasoline is held at the same level

throughout the country, there is little incentive for adding bulk storage facilities or more tank trucks; additional tankage is being commissioned by the Nigerian Government.

SECTOR ANALYSIS

Exploration and Production

Seven international oil companies/consortia are lifting Nigerian crude oil in partnership with the wholly government-owned Nigerian National Oil Corporation (NNOC). Another seven groups hold oil prospecting licenses.

The level of Nigerian crude oil production has dropped significantly since early 1974, mostly due to the softening of world petroleum demand, with a further limitation in the form of Nigerian Government cutbacks imposed on some producers. Daily production averaged 2.3 million barrels per day in the first half of 1974. By May 1975 the daily rate was down to 1.6 million bpd, and it appears to have bottomed out at that level; November production recovered to 1.9 million bpd. Distribution among producers is shown in table 4.2.

There are 11 drilling contractors operating in Nigeria—seven of them are American (Appendix 4.1). Together with Shell-BP, which uses a few of its own rigs, these companies operated 28 rigs in 1974, spudding 230 new wells. Drilling activity over the last 3 years is summarized in table 4.3.

Foreign drilling companies in Nigeria are conservatively estimated to have spent about \$5 million in 1974 just on spare parts and expendables for actual rig operation; this, of course, excludes fuel and lubricants and other variable cost items furnished by the client producers. It also excludes exorbitant overhead expenditures necessary to insure continuity of operations in Nigeria. Most contractors are capable of furnishing their own onshore utility power requirements. One of the larger American companies has extended self-reliance to machine shop services and even to motor rewinding.

Because Nigeria has no true "rope, soap, and dope" shops offering everything in the way of oilfield supplies, and because customs duties and other import costs are for the account of their

Table 4.1.—Nigeria: Sales of petroleum products, 1973–1980¹

(in thousands of barrels)

	1973	1974	1975	1976	1977	1978	1979	1980
Aviation gasoline	27	35	44	55	70	91	118	159
Motor gasoline								
Premium	4, 173	5, 340	6, 400	8, 000	10, 000	12, 800	16, 640	21, 630
Regular	1, 947	2, 136	2, 300	2, 530	2, 783	3, 060	3, 430	3, 840
Kerosene	2, 001	2, 330	2, 500	2, 875	3, 220	3, 540	3, 825	4, 130
Jet fuel	959	988	1, 250	1, 313	1, 445	1, 660	1, 990	2, 390
Diesel, gas, tractor, & furnace oils								
Bunkers	82	139	250	288	316	364	418	480
Internal	4, 326	4, 874	5, 100	5, 610	6, 170	6, 665	7, 200	7, 775
Residual fuel oils								
Bunkers	122	170	195	215	236	260	286	314
Internal	2, 724	2, 649	2, 600	2, 520	2, 445	2, 375	2, 300	2, 230
Lubricants								
Oils	361	400	440	488	547	618	710	817
Greases	29	35	40	46	53	62	73	85
All other	727	1, 082	1, 565	2, 190	2, 850	3, 420	4, 100	4, 920
Total	17, 479	20, 178	22, 684	26, 130	30, 135	34, 915	41, 090	48, 770

1. Figures for 1973 and 1974 represent actual sales; 1975 figures are estimates based in part upon actual sales January–March. Projections 1976–80 take into account import facilities, refining capacity, and demand factors.

Sources: Marketing companies' data for 1973–74; Commerce Survey Team projections.

clients, American drilling firms buy more than 90% of their supplies in the United States—right down to the mops used to swab their platforms.

And the Nigerian oil industry buys in quantity. Delivery periods are so long and uncertain that companies keep much larger and more complete inventories than for operations elsewhere in the world. Most producing and drilling companies become uneasy if stock falls below a 9-months' supply, and many reorder points are set at a year or longer. One producer has a half million dollars tied up just in Caterpillar spare parts. All told, the Nigerian oil industry has over \$100 million in inventories.

Refining

Nigeria plans to add more than 800,000 bpd of refining capacity to the 60,000 bpd now installed.

First priority will be to make up the present deficit in refining for domestic consumption; Nigeria is importing roughly one-third of its requirements of refined products, and the proportion will probably grow as motor vehicle usage continues to expand faster than the country's ability to produce gasoline over the next few years.

Nigerian policymakers also want to refine more of the country's petroleum exports. The Government is ready now to entertain proposals from prospective foreign partners for two or three export refineries that together would have a throughput capacity of 600,000 bpd.

The Present Refinery

Nigeria's single, 60,000 bpd oil refinery was built in 1965 at the town of Alesa-Elene near Port Harcourt. The Nigerian Petroleum Refining Company (NPRC), which operates the refinery, is 60% owned by NNOC with the balance held by Shell-BP. NPRC accepts and processes crude from the marketing companies on a throughput fee basis. Refinery capacity is allotted among the seven marketing firms in Nigeria in proportion to their sales. Table 4.4 shows production since 1972.

Initially reliant on the contracted technical services of British Petroleum, NPRC has progressively Nigerianized its staff, and it had only two BP executives remaining by 1975. All offshore procurement for the refinery has been done through the BP purchasing office in London. These arrangements were up for renewal late 1975. Some refinery sources have suggested that self-sufficiency of Nigerian managerial talent, coupled with a growing interest in developing alternate supply and equipment sources may lead to a substantial further reduction in the BP role in refinery operation and procurement.

Managers are particularly interested in seeking new solutions to some of the installation's chronic operational problems, most of which are inherent in processes and equipment that were built-in 10 years ago and are now becoming obsolete. For example, the catalytic reformer is not of the now conventional regenerative type,

Table 4.2.—Nigerian oil production,
May 1975

Producer ¹	Average bpd
Shell-BP	933,000 ²
Mobil	178,253
Gulf	165,435
Agip/Phillips	153,000 ²
Elf	60,000 ²
Texaco/Chevron	7,440
NNOC (Ashland)	10,000 ³
Total	1,567,128

1. All producing companies except Ashland have 55% ownership by NNOC. Ashland operates under a production-sharing contract with NNOC.

2. Provisional figures.

3. Production began June 10, 1975.

Source: Oil Producers Trade Section, Lagos Chamber of Commerce and Industry.

and sulfur contamination of the catalyst has become a problem since sulfur is not removed from the feed. An improved process for rejuvenating the catalyst, along with superior solutions to other operating problems, could both increase onstream efficiency and reduce downtime for maintenance. In its present configuration, the Port Harcourt refinery is shut down for 30–60 days every 2 years for major rehabilitation. (This periodic overhaul is put up for bid each time; Wimpey performed the last one in February 1975.)

That the refinery is so vital a source of fuel for Nigeria's booming economy has in the past sometimes led to applying short-term solutions to long-term problems, a practice that present refinery managers fear will catch up with them. The obsolescence of two Dorman diesel engines illustrates this hazard. Installed as original equipment a decade ago, the units have not been manufactured for some years. After increasingly frequent repairs, one engine finally deteriorated to the extent that nothing short of replacement would work. Although no more engines of that model could be found, BP advisors were deterred from substituting a new engine of another type by the difficulty of making the required modifications. Instead, they persuaded the manufacturer to assemble one more engine of the obsolete type from leftover spare parts. Now refinery engineers are waiting for the other shoe to drop; there are no longer enough components to make another replacement when the second engine fails.

Major capital projects being undertaken by NPRC include add-on refining capacity in the form of skid-mounted units (see "New Domestic Capacity,") and a new jetty for loading product. Tankers have been loading through makeshift facilities since a vessel collided with the existing jetty in 1973. The Third Plan allots \$16.5 million for the new jetty, NPRC sources now estimate

that the entire new berthing facilities with associated tanks and pipelines will cost about \$100 million. Refinery officials expected to invite design proposals by the end of 1975. Meanwhile, manual handling and improvised booms are taking their toll on loading hoses; 2-inch LPG hose and 4- and 6-inch sizes for other products are being replaced almost continuously, with none lasting longer than 6 months. The Port Harcourt docks are congested (although not as badly as those at Lagos), and the resupply situation became so critical that at one point, LPG hose had to be airlifted from Kuwait to keep operations going.

Power generating equipment will be an early addition to the refinery complex. NPRC estimates annual losses of \$570,000 to \$800,000 due to interruptions in utility power. The present 3 MW of generating capacity will be tripled with the addition of gas turbine generators. Kennedy & Duncan of the United Kingdom are consultants for this project.

Immediate and continuing needs specially noted by the refinery staff include the following:

- Heat exchanger shells for hydrogen gas service
- Dry rotary air compressors (250 lbs. discharge pressure)
- Mobile pumps
- Small circulating pumps
- Pumps with urethane impellers
- Diesel engines (7 at approximately 200 hp.)
- Gas turbine generators (6 MW total)
- Two-inch (LPG), four-inch, and six-inch loading hoses (15 and 20 ft.)
- Leak detection equipment
- Communications system: one radiotelephone and one radio teletype circuit between Port Harcourt and Lagos
- Audio-visual training aids
- Advanced technical training services for refinery staff (onsite and/or abroad)

Table 4.3.—Summary of Nigerian drilling activity, 1972–74

	1972	1973	1974
Exploration wells spudded	57	43	41
Appraisal/development wells spudded	190	189	189
Appraisal/development wells completed	34	21	53
Total footage drilled (thousands of ft.)	2,490	2,274	2,319

Source: *Monthly Petroleum Information*, Department of Petroleum Resources, Federal Ministry of Mines and Power, Lagos.

New Domestic Capacity

To satisfy its long-term requirements for domestic consumption, Nigeria will build a 100,000 bpd refinery at Warri, the petroleum center in Mid-Western State, and a 70-100,000 bpd refinery at Kaduna, the capital of North-Central State, some 600 miles to the north. Both will be wholly owned by NNOC and operated by a new division, now known simply as the Second Refinery Project, which will be separate from NPRC.

However, Nigeria cannot wait for the completion of the first of these new installations to obtain relief from its growing fuel thirst, so the NPRC plans to raise its capacity by 40,000 bpd in less than 3 years by adding skid-mounted, 5,000 bpd refining units in two stages. Initially, two units will be installed at the Port Harcourt complex and two will be sited at Ughelli, about 20 miles east of Warri in the Mid-Western State oil-producing area. NPRC hopes to have both first-stage installations onstream in 1976 at a cost of slightly over \$15 million. The refining units are being supplied by the Houston subsidiary of a Norwegian company.

The second stage involves an additional 20,000 bpd of refining capacity and a 4,000 bpd catalytic reformer; NPRC officials would like to have this stage completed in 1977.

The Warri Refinery.—The contract award for construction of this 100,000 bpd complex was awarded late in 1975 to SNAM S.p.A. of Italy. The project is expected to cost nearly half a billion dollars—almost double the \$263 million estimated in the *Third National Development Plan*. NNOC will push to have the refinery operating by the end of 1978. With a fluid catalytic cracker and product pipelines feeding the two major Nigerian population centers, Ibadan and Lagos, the Warri refinery will be the most advanced and the most important in the country.

Table 4.4.—Nigerian refinery production, 1972-74

(in thousands of metric tons)

	1972	1973	1974
Crude processed	2,194	2,772	2,725
Finished products:			
Liquefied petroleum gas	9	15	14
Premium gasoline	331	418	432
Regular gasoline	185	240	193
Dual purpose kerosene	306	400	376
Automotive diesel fuel ..	548	654	651
Low pour fuel oil	203	282	286
High pour fuel oil	544	684	681

Source: *Monthly Petroleum Information*, Department of Petroleum Resources, Federal Ministry of Mines and Power, Lagos.

The Kaduna Refinery.—Sited to spur economic development in less industrialized northern areas of Nigeria, the refinery at Kaduna will be fed by a 600 mile crude oil pipeline from the gathering system in Mid-Western State. With a nominal capacity of 70,000 bpd and no catalytic cracker, the installation will cost less (\$250 million to \$300 million) and can be constructed more quickly than the Warri plant. Although starting a year behind the Warri project, the Kaduna refinery should be finished within 6 months of the other. Tender invitation is expected early in 1976.

Export Refineries

Like other developing countries in general, and oil-producing countries in particular, Nigeria wants to increase the degree of processing and the value added to the export products of its extractive industries. Thus, the *Third National Development Plan* includes two export refineries, each of 300,000 bpd throughput capacity. Together, they could process over one-third of Nigeria's present crude oil production. More than \$600 million has been earmarked for the NNOC capital contribution to these ventures, which would be undertaken jointly with foreign partners.

Given the weaker demand for petroleum products worldwide and the substantial capital required to build large-scale refineries, some Nigerian oil officials now think three refineries each of 200,000 bpd capacity might be a better approach to their goal. Neither these nor other operating parameters for the export refineries are fixed, and policymakers say they will be receptive to proposals for configurations that will be attractive to the prospective operating and marketing partners.

Other Processing

Natural Gas Liquefaction

Nigeria is flaring some 2 billion cubic feet of oil-associated natural gas daily, a waste the Government is anxious to eliminate. Already gas is finding increased use in electric utility plants and as an industrial fuel in the areas where it is produced. Gas also will be a petrochemical feedstock (Chapter 16, Chemicals) and a reducing agent for iron ore (Chapter 5, Mining), but all of these applications together still would use only a fraction of the gas that is available.

The major portion of the gas now burned will be fed to two liquefied natural gas (LNG) plants, each of 1 billion cubic ft./day capacity, to be built and operated by government partnerships with Agip/Phillips and Shell-BP. The Federal Government will have 60% participation in each

LNG plant, 100% ownership of an integrated gas gathering system to feed both, and 50% of the LNG tanker fleet on which the product will be exported.

The Agip/Phillips complex will incorporate a 300,000 ton-per-year ethylene plant. Although terms of both joint ventures still were being worked out as of mid-1975, marine engineers already were looking into the problem of loading through the shallow, 20 foot depth at the Agip/Phillips site on the south bank of the Escravos River. The Shell-BP plant will be at Bonny, south of Port Harcourt, where the company's major oil export terminal also is located.

The Government announced its intention to establish and operate an integrated gas gathering company only in February 1975; this new entity is to "acquire and transmit gas to all gas-based projects," according to the public announcement. However, the price at which the gas would be made available or the transmission fees to be charged were not set. Since this factor is critical to the economics of the LNG projects, as well as other gas-using industrial ventures, final agreements and construction go-ahead probably will have to await precise definition of the role and rate structure of the gas-gathering company. There were unconfirmed reports in June 1975 that the Government had appointed Gaffney-Klein as consultants for the gathering system—evidence that officials are intent on maintaining progress toward full utilization of Nigeria's natural gas resources.

Lubricating Oil Production

A 230,000 ton per year lubricating oil refinery is planned for the Warri complex. Still in the feasibility analysis stage in May 1975, the plant would come onstream one year after the refinery proper. Because Nigerian crude oil is too aromatic, the refinery would use 35,000 bpd of imported, paraffinic crude. Residual products such as wax and asphalt are being considered.

Several lube oil blending plants operate in Nigeria now; total 1974 production was nearly 35,000 tons. Texaco's Nigerian blending facility—one of its most efficient worldwide—produces more than 50,000 barrels annually.

Nigerian processing and packaging of lubricants still is relatively labor-intensive, but there are plans for expansion to accommodate the country's growing demand. Marketing executives indicate the new facilities will have more automated processes and particularly cite the need for filling and closing machinery for both metal and plastic containers.

Table 4.5.—Oil company expenditures on selected items, 1974

(in millions of U.S. dollars)

Tubular goods	115.0
Fuel and lubricants	16.8
Wellhead and completion equipment	15.5
Chemicals	12.3
Gaskets and other rubber goods	6.9
Valves and pipe fittings	6.0
Cement	5.2
Pumps	3.1
Gas turbines	3.0
Repressuring and control equipment	2.2
Engine spare parts	1.9
Navigational aids	1.3
Rock bits	1.1

Source: Commerce Survey Team estimates based on companies' purchasing data, suppliers' sales figures, and import returns of the Federal Office of Statistics, Lagos.

Petroleum Marketing

Most of Nigeria's domestic petroleum distribution is in the hands of seven major marketing companies: Esso Standard, Mobil, Texaco, Agip, BP, National, and Total. National (the National Oil Marketing Company, NOMCO), was created when NNOC purchased 60% of Shell Nigeria in 1974. It is the Nigerian Government's first venture into the marketing end of the business. Industry executives expect NNOC to buy into the other marketing companies, one by one, until it holds a controlling interest in all product marketing activity in Nigeria.

The seven major companies have built most of the country's 1,400 gasoline filling stations in and around urban centers, where they sell roughly the same average volume as U.S. stations—about 245,000 gallons per year. Individually-owned stations operate at points on the intercity roads and are supplied by small, independent wholesalers. These jobbers constitute the principal loophole in the Government's price control system for motor fuel.

One purpose of the price controls is to encourage more economic development in the northern parts of Nigeria, where fuel would otherwise be too expensive due to transportation costs. The other is to keep the price in bounds generally, to avoid price escalation to the extent of retarding economic growth. With limited refining capacity and import facilities, Nigeria's petroleum delivery system is fragile; the least disruption, compounded by hoarding, produces shortages throughout the country. Without controls, the price would climb sharply. Retail pump prices were set at about 55¢ per gallon for regular and 61¢ for premium (including 21¢ tax)

in early 1975. This seems to be well below the threshold of price elasticity of demand. Illegal sales at ₦ 40 (\$65) per 50-gallon drum were said to be common during the May 1975 shortage.

As a result of this price/demand structure, legitimate marketing companies find little incentive to open new retail outlets or to expand storage and transport capacity. The companies are reluctant to add tankage at Lagos pending a government decision on possible construction of a new petroleum terminal at Atlas Cove, some distance from the present petroleum jetty at Apapa. For most firms, transport costs to areas beyond Lagos deter capital outlays in those marketing regions. Plans for new stations are being shelved; Agip is opening only four countrywide in 1975. Esso expects to add retail outlets only in the Lagos area in the immediate future. Texaco has begun to require commercial and industrial customers to furnish their own tankage.

Transport

Petroleum distribution radiates from Port Harcourt and Lagos. From the NPRC refinery, products move overland by tank truck and to Lagos by coastal tankers, which share the single jetty there with vessels bringing the 35 to 40% of Nigerian consumption that is imported. From Lagos, both rail and truck shipment is employed. Contract haulers perform most of the road transport, leasing fleet capacity to the marketing companies. Products are shipped by rail in tank cars owned by the marketing firms and hauled by the Nigerian Railways Corporation.

Rail transport has not proven too satisfactory. Tank cars leaving Lagos for Kano, 700 miles to the northeast, will return for another load only after a month or longer. One marketing executive reported eight of his company's cars were lost for up to 2 years.

Three large firms dominate the road transport activity: Transcontinental, Halawi (Lebanese), and Barthe Anyoni. Leyland, Henschel, and Morris trucks are the mainstays; one trucker recently added 10 Fiats. The transport companies often order directly and finance their imports themselves. Sometimes chassis are imported and fitted with locally made tanks.

Demand for fuel trucking services is increasing as improvements in Nigeria's highway system steadily widen the gap in efficiency between road and rail modes. A number of contractors are adding to their fleets; one has complained of the 4-8 month wait to get new vehicles.

The marketing companies also operate owned vehicles. Agip expects to buy thirty 25-ton trucks as well as some dump trucks for asphalt.

Pipelines are planned for future distribution

from refineries to major demand centers. Also, to reduce vulnerability to shortages, storage areas sufficient for 90 days' supply will be built at strategic locations around the country. These distribution projects are expected to cost the Nigerian Government between \$900 million and \$1 billion.

The 600-mile pipeline to carry crude oil from Warri north to Kaduna for the new refinery there will cost roughly \$340 million. From there, products will be carried 160 miles further north to Kano in another pipeline.

Production from the new Warri refinery will be conveyed 180 miles by pipeline to Ibadan or to nearby Abeokuta, where a large storage facility will be constructed. From there, products will be piped to Lagos (another 90 miles from Ibadan). British consultants have already been appointed to ready plans for the project, which is expected to be finished by the time the Warri refinery comes onstream in 1978.

A third product pipeline is to be built from Port Harcourt to Enugu to Makurdi—a distance of about 420 miles. Together, the three product pipelines will cost almost a half billion dollars.

The Government also plans a tanker fleet to be established as a subsidiary of NOMCO. Intended to carry 20% of Nigerian production by the end of the Third Plan period, the fleet is to have a number of vessels in the 80-250,000 ton range and one or two small tankers of just under 50,000 tons. The company probably will start with long-term charters while awaiting construction of ordered vessels, or might charter vessels with options to buy. The Third Plan includes \$385 million for the venture.

EQUIPMENT AND MATERIALS REQUIREMENTS

Oil industry purchases of equipment and materials just to support continuing operations are substantial, but as major capital projects get underway, imports of many kinds of equipment will have to double or triple.

Producing and drilling companies in Nigeria are estimated to have spent some \$260 million for equipment, parts, and supplies in 1974. The items listed in table 4.5 accounted for about three-fourths of that total. Tubular goods—casing pipe, line pipe, and drill pipe—lead the list at an estimated \$115 million; this figure probably is higher than usual, reflecting 1974 deliveries of pipe ordered in extra quantities during the tubular shortage of 1973. Purchasing levels for the items shown will probably be sustained for continuing operations through 1980. These expenditures are mainly a function of production and well development activity, which most industry

observers in Nigeria believed would resume growth by mid-1976. (Production turned around before the end of 1975.) Another factor underpinning demand is the perceived need to increase inventories in view of the deteriorating port situation.

Apart from requirements for routine operations and additional supplies and capital equipment for the major new undertakings, service contractors such as transport and construction companies will be buying extra equipment to fill oil industry commitments. The following paragraphs summarize demand factors for selected groups of products.

Line Pipe.—Product and crude oil pipeline projects will total some 1,500 miles, not counting the gas gathering system to feed the two liquefaction plants planned.

Pumps and Valves.—Pipeline flow stations and terminals as well as refinery and petrochemical plant construction will substantially increase the oil industry purchase levels shown in table 4.5.

Compressors.—In addition to the gas exploitation projects discussed above, requirements already exist for compression equipment for gas reinjection to prolong the productive life of oil wells. One company's program is said to involve more than 100 Caterpillar-driven Ingersoll-Rand compressors.

Diesel Engines and Gas Turbines.—Both sources of motive power will be in increasing demand for direct drive applications such as pumps and compressors and for standby electric power generation. Total 1975 imports of industrial diesels were estimated at \$3.9 million, of which \$3.1 million was for other than electric utilities. The estimated 1975 total of \$11 million for gas turbines includes \$6.5 million attributed to the oil industry. Overall imports of each product are projected to 1980 in table 2.2 of chapter 2, Electric Power.

Heat Exchangers.—New refineries and LNG plants constitute the best sales opportunities; replacement units for the NPRC refinery at Port Harcourt also may be required.

Materials Handling Equipment.—A number of oil companies now lease their requirements for much of this machinery, either from dealers or, for receiving and distributing at supply depots at the ports, from the Nigerian Ports Authority. Development projects will substantially increase demand—particularly for side-boom cranes and other pipe-laying gear.

Construction Machinery.—Oil industry construction will contribute significantly to the overall requirements cited in the construction chapters of this Survey. Petroleum jetties at Lagos and Port Harcourt and pipeline projects will account for most of these needs; site preparation

for major processing plants will generate additional demand.

Transport Equipment.—Heavier equipment usually is purchased by transport firms contracting their services to the petroleum companies. Land and water vehicles in oilfield service take heavy punishment in Nigeria, and the need for capacity and durability suggest a greater potential for U.S. sales than has been realized to date. It also means that in addition to steadily increasing demand for new equipment, there is a tangible replacement market and excellent parts aftermarket. Sales prospects for water taxis and tugs are especially good; one contract transport firm reports its primary client, Shell-BP, is pressing for additions to its water fleet. Aircraft requirements are discussed in chapter 9, Aviation.

Metalworking Machinery.—Market prospects are particularly good for welding equipment, due mainly to the level of pipeline and tank construction planned. Also, machine shops serving the petroleum industry are planning some expansion, with one Port Harcourt firm expecting to set up a new shop at Warri. There will be requirements for several hollow spindle lathes, milling machines, and surface grinders.

Communications Equipment.—The oil industry is probably the largest Nigerian market segment for general purpose, point-to-point and mobile communications equipment and services, accounting for an estimated 40%—about \$1.2 million worth—of transceivers imported in 1974. (A leading sales agency attributes another 35% share to government agencies and 25% to other commercial customers.) Pending substantial improvements in the Government's communications services, oil companies and service firms will continue to rely on their own VHF and HF/SSB radio networks for long distance service in Nigeria.

COMPETITION

American suppliers to the Nigerian petroleum industry enjoy a favorable competitive position in most products and services, but have in recent years forfeited significant sales to third country competitors. Generally, procurement is decided on a straight order price/delivery basis, but in many cases where operations have been threatened by shortages, consistent availability has become the paramount consideration.

Tubular goods offer the prime example of this phenomenon; rock bits, oil tools, and engine spare parts also have followed the same pattern. Most producing companies relied primarily on U.S. mills for tubular steel until a few years ago, because they knew they could count on exacting

specifications and were reluctant to experiment with sources with which they were less familiar. But when they began to have trouble getting orders filled, purchasing managers turned fickle. Now, Japanese, Italian, French, and German mills, manufacturing to API (American Petroleum Institute) specifications, enjoy significant market shares—28%, 13%, 8%, and 7%, respectively—compared to the 35% retained by American companies in 1974. Texaco (Nigeria) recently concluded an exclusive supply contract with Mitsui; Shell-BP reserves European steel mill capacity up to 2 years in advance.

Rock bits must be continuously available to avoid idling costly drilling rigs. One producing company agreed to place a certain minimum percentage of its business with a new supplier in return for off-the-shelf availability. In all of these cases, concern for continuing operations became the opening wedge for new competitors.

Beyond the criterion of consistent availability, sourcing patterns vary by product and, sometimes, by end user. Drilling companies, as noted before, obtain the overwhelming majority of needs from the United States; third country procurement generally is limited to ad hoc purchases to fill urgent requirements and to spare parts for items of non-U.S. origin. NPRC has tended to return to original equipment sources, as in the diesel engine purchase cited earlier. Foxboro (U.S.) replacements are bought for the Foxboro instrumentation initially installed in the Port Harcourt refinery.

Some product-by-product differences are noteworthy also. For example, although there has been increasing competition from Japanese and European suppliers of tubular goods, this has been most true of line pipe and casing pipe. American sources have retained more of their hold on the Nigerian market for drill pipe.

Caterpillar diesel engines have been favored by most oil industry firms, but, as with customers in the electric utility sector, lengthened deliveries threaten future sales growth.

Solar (U.S.) gas turbines face competition mainly from Brown Boveri (Swiss) and Ruston (U.K.).

British suppliers of materials handling equipment have well-established sales/service representation and account for much of the business. Jones Cranes and Conveyancer forklifts are widely used.

Many oil industry managers would prefer to use American trucks, but parts availability has usually dictated purchase of European makes. The promising market for utility vessels for oilfield service is ripe for American manufacturers, as the Equitable Equipment Company of New Orleans found out with a \$160,000-plus sale of water taxis to a Warri contractor. Vessels now in service are

powered mainly by GM, Mercury, Volvo, and Samofar (Dutch) engines.

Machine shops serving the petroleum industry have an assortment of American, British, and German tools. Operators planning new acquisitions lean toward known American sources but say they can't live with the 2-year deliveries that they have been quoted when adequate European machines can be had in 6 months.

U.S. makers of welding equipment have been successful, with Hobart, Lincoln, and Miller all said to be selling well. French SAF static welders are well-regarded. Welding materials are in short supply and are bought from whoever has them.

With few exceptions, Nigerian petroleum industry clients are uncommitted to any suppliers. The newcomer that will fill orders consistently, deliver quickly, and make parts readily available can expect to sell. For a growing number of these products, these competitive factors almost entirely supersede price and credit competition.

MARKETING APPROACHES

Depending on who the customer is, some sales to the Nigerian petroleum industry can be made within the United States. Some large orders also can be written in London and the Hague. But for sustained sales of most items, an occasional trip to Nigeria will pay off handsomely, and as the list in Appendix 4.1 indicates, many companies have found that the product already in Nigeria is the one that beats the competition. This could extend to many more products than now are stocked in the country for petroleum industry use.

Channels of Distribution

Producing and Drilling Companies

The international oil companies do most offshore buying through central purchasing offices at major headquarters throughout the world. Most drilling contractors also purchase through home offices. Purchasing office locations for some of the major firms are shown below:

<i>Producing or drilling company</i>	<i>Purchasing offices</i>
Shell-BP	The Hague, New York (American Petroleum Co.)
Ashland	Houston
Mobil	New York
Texaco	Houston
Gulf	Pittsburgh, London
International Drilling Co.	Houston

However, these and other petroleum industry

firms will obtain locally those import needs stocked by Nigerian agencies. Almost all rock bits, for example, are sold through Nigerian oilfield supply companies representing major manufacturers. While these supply houses do not come close to the level of "rope, soap and dope" shops, they represent many U.S. lines of oilfield equipment. The three main supply firms are profiled below:

Allied Oilfield Services (Nig.) Ltd. (AOS).—A subsidiary of Intairdril (U.S.) through Oil Tools International (London), AOS represents 17 overseas principals serving the oil industry. Headquartered in Lagos, the company provides most of its equipment and services through field offices at Warri and Port Harcourt. The firm's 17 personnel include AMF tuboscope technicians performing pipe inspection, straightening, facing and hardbanding services. Other AOS principals are AMF Sea-Link, Brinnard (chemicals and muds), Cabot (oil rigs), Drillco, Hughes Tool, Ingersoll-Rand, Jetco, Joy Petroleum Equipment, McFarland Industries, McMurray, Mission Manufacturing (TRW), Page Oil Tools, Service Division of Smith International, Wallace & Tiernan (navigational aids), Waukesha, and Willis Oil Tools.

Service and Supply Company of West Africa Ltd. (SASCO).—American-owned SASCO is located in Port Harcourt. A busy machine shop accounts for a significant portion of its business, and the company is considering opening a similar branch in Warri. SASCO represents Imco Services, Joy Petroleum Equipment, and Weatherford Oil Tool.

Trans-Africa Engineering, Ltd.—This VETCO Offshore (U.S.) subsidiary is probably the largest of the three major oilfield supply houses, both in terms of scope of activity and sales. Trans-Africa operates machine shops and provides VETCO tubular inspection services at both Warri and Port Harcourt; the company also performs some steel fabrication (flowlines, manifolds). There are some 200 Nigerians and 20 foreign employees on the Trans-Africa staff. In addition to VETCO, Trans-Africa represents British Ropes, Byron Jackson (Borg-Warner subsidiary), Daniel Industries, Fire Control Engineering, FMC Oil Center Tool, Hewit-Robins Industrial Rubber Products, Jet-Lube, Nigerian Ropes, North American Inspection Services, Polyken (division of Kendall Co.), Reed Tool, Solar (division of International Harvester), Texsteam, Tideland Signal, TK Valve & Manufacturing, U.S.I. Aselson, and the Whittaker Corp. Advanced Structures Division. Like other oilfield supply firms, Trans-Africa reports business growing more slowly in 1975 than in 1974. In the latter year, sales for principals increased more than 25% from 1973; 1975 growth was expected to be around 10%.

Some manufacturers serving the oil industry will find it advantageous to set up their own sales and service organizations in Nigeria, as have Baroid, Cameron Iron Works, Halliburton, and a number of other American firms.

Other Customers

For items such as pumps and valves, common to refining and marketing operations as well as to producing activity, the same distribution channels often are used.

NPRC use of the BP purchasing office was discussed earlier. Refinery management is interested in diversifying sources of supply and, if the board of directors approves changes to the traditional BP purchasing agreement (possibly by late 1975), will welcome initiatives from American suppliers.

For sales of equipment to the major new capital projects—the new refineries, LNG plants and pipelines—marketing approaches are best directed at the design consultants or prime contractors.

Tariff Concessions

To facilitate oil exploration and production, the Nigerian Government has established an "Approved User Scheme," whereby import duties are waived or rebated on certain materials and equipment used by the petroleum industry.

The list of items for which the reductions are made is determined on a case-by-case basis in negotiations with each producing, drilling, or other service company. To qualify, nomenclature on import documents must conform precisely with that on the official, agreed list. That is, if "electrical wire" is to be exempted, it cannot be shown on bills of lading as "conductor," "cable," or any other such description and still qualify.

Although the list and exemptions will vary among the different Approved Users, the pattern seems to be that items which are useful only in the petroleum industry may be exempted initially from any import levy, while those capable of other use are dutiable upon entry, with a tax credit being allowed the consignee once the goods have been used for a petroleum-related purpose. For example, casing pipe might be exempt altogether from duty, while line pipe—which might be used in irrigation or other applications, is dutiable on entry, but a tax credit equal to the duty paid can be obtained by application.

This benefit has been available only on items consigned to the Approved User. Items imported by an agent or distributor for his own account are dutiable regardless of their eventual use. This has

had the effect of discouraging maintenance by local oilfield supply houses of large inventories to meet spontaneous requirements.

More Opportunities

A number of untapped opportunities remain despite impressive array of American companies now supplying the Nigerian oil industry and the limited scope of the Approved User Scheme. Many purchasing officials have suggested that a true "rope, soap and dope" shop would prosper despite the level of import duties that some items would incur. Companies operating in Nigeria complain of having to devote 16 man-hours or more *daily* just to chasing goods. Price gouging on items in short supply is practiced by some local sources; one firm reported paying ₦450 (about \$740) for an air starter that sells in the for \$60. Four-inch galvanized elbows fetch a staggering \$66 in a pinch. Safety equipment (nondutiable) is not carried in stock in Nigeria, but is required in quantity by the oil industry as well as the construction and utility sectors.

The imperative nature of oil industry demand suggests that these and other items could be sold profitably despite inventory costs and import duties.

Appendix 4.1.—Oil and gas industry in Nigeria (Companies by function)

BROKERS

Southern Atlantic Oil Services

CONSTRUCTION SERVICES

- *Bonny Oil and Gas
- *Brown & Root
- *McDermott
- *NISSCO
- *Oil & Marine Contractors
- George Whimpey
- Monier Construction
- Mothercat
- Whessoe Engineering

CONSULTANTS

- *Petroleum Consultants
- Metals and Minerals

DESIGN & ENGINEERING FIRMS

- *Brown & Root
- *Foster Wheeler
- *McDermott

DIRECTIONAL DRILLING

- *Eastman-Whipstock

DIVING SERVICES

- *Oceaneering
- Comex
- Nigerian Diving Service
- Solus Schall

DREDGING CONTRACTORS

- Nigerian Dredging
- Westminster Dredging

DRILLING CONTRACTORS

- *IDC
- *Nigeria Drilling
- *Onshore Services
- *Reading & Bates
- *Santa Fe
- *Storm
- *Transworld
- Forasol
- Forex
- KCA
- Saipem

DRILLING FLUIDS (MUD)

- *Baroid
- *Dresser Magcobar
- CECA

ELECTRIC LOGGING

- *Schlumberger

EQUIPMENT MANUFACTURERS

- *Alea
- *Baker
- *CAMCO
- *Cameron Iron Works
- *Christensen
- *Dresser
- *Gray Tool
- *Otis
- *Weatherford
- *Wayne

EQUIPMENT SUPPLY COMPANIES

- *Alea
- *Allied Oilfield Services
- *CAMCO
- *Christensen
- *Dresser
- *SASCO
- Trans-Africa Engineering
- Delta Systems
- Oil Supply Centre

EXPLORATION COMPANIES

- *Ashland
- *Occidental
- *Pan Ocean
- *Tenneco
- Deminex
- Japan Petroleum
- Nigerian National Oil Corp.
- Also see Producing companies.

GAS COMPANIES

- *Nigeria Gas Products
- Also see LPG marketing companies.
- Also see industrial gas companies.

GEOPHYSICAL CONTRACTORS

- *Nigeria Surveys
- *Seismograph Service
- *United Geophysical
- Hunting Survey

HOLDING COMPANIES

- Delta Oil
- Henry Stephens & Sons
- Niger Oil Resources
- Niger Petroleum

INDUSTRIAL GAS COMPANIES

Gas Producers
Industrial Gases
Nigergas

LABORATORY ANALYSIS

*Core Laboratories

LPG MARKETING COMPANIES

Agipgas
Cotsgas
Greater Nigeria
Nigerian & Overseas
Pan African
Shellgas
Totalgas

MACHINE SHOPS

*SASCO
*Trans-Africa Engineering

MARINE SERVICES

*Tidex
*Zapata

MARKETING COMPANIES

*Esso Standard
*Mobil (MONL)
*Texaco Nigeria
Agip (Nigeria)
BP Nigeria
National (NOMCO)
Total Nigeria

MUD LOGGING

*Baroid
*Core Laboratories
Geoservices

PIPE INSPECTION

*Allied Oilfield Services (Tuboscope)
*Transafrica Engineering (VETCO)

PIPELINE CONTRACTORS

*Bonny Oil and Gas
*McDermott
*Nigerian Pipelines
*Oil & Marine Contractors
*SEDCO-Bean

PRODUCING COMPANIES

*Gulf
*Mobil
*Phillips
*Texaco Overseas
*Elf
Nigerian Agip
Shell-BP

REFINING COMPANIES

Nigerian Petroleum Refining Company (NPRC)
Second Refinery Project

SURVEY CONTRACTORS

*Nigeria Surveys
*West African Surveys
Geodetic Surveys
Geoletic Survey
Hunting Survey

TANK CLEANING

Chemex

TRAINING & OPERATING SERVICES

Flopetrol
Doliz
Overseas Technical Service

WELL CEMENTING

*Dowell-Schlumberger
*Halliburton

WIRELINE SERVICES

*Baker
*CAMCO
*Otis
Flopetrol

* American companies.

Source: American Embassy, Lagos.

Chapter 5

MINING

HIGHLIGHTS

The mining sector will in several respects be a substantially better market in the 1975–80 period than the figures in the *Third National Development Plan* indicate. Some projects have already doubled in value. First year capital budgets for the Geological Survey Department and the Nigerian Coal Corporation already are well over Third Plan estimates. All told, nonferrous mining and minerals development is expected to command more than \$380 million in capital spending—about half again the \$250 million estimated in the Third Plan. Iron and steel development is slated for five times this investment level but is progressing more slowly.

Tin and coal are Nigeria's principal economic minerals after petroleum, but production of both has declined significantly since the mid-1960s. A large portion of Government outlays for mining will be to restore output of these products.

Preliminary surveys suggest commercial deposits of other minerals: lead, zinc, copper, lime and marble, barites and gypsum, and even gold and uranium. Additional efforts will be made to verify and develop these mineral reserves, and the Nigerian Mining Corporation (NMC) indicates this exploratory and developmental work will take place on a much larger scale than its Third Plan estimates reflected.

Exploitation of Nigerian iron ore is a long-standing goal of economic planners. About \$1.7 billion has been earmarked in the *Third National Development Plan* for iron and steel projects (classified under "Manufacturing" in the *Plan*), but details remain to be worked out. Most observers seem to think implementation of these projects will begin before 1980, but not early enough to consume the allotted funds within the Third Plan period.

Planned expenditures for mining and minerals development are summarized in table 5.1.

SECTOR ANALYSIS

Tin

Nigeria is the world's sixth largest tin producing country, recording 5,455 metric tons output of tin in concentrates in 1974. The shallow, alluvial

deposits in the Jos Plateau area of Benue-Plateau State have been mined since the early 1900's, when native bearers carried the first exports overland more than 150 miles to reach the nearest navigable river. Now most of the large shallow deposits have been depleted, and the larger companies still using open-pit mining are reaching down 150–300 feet.

The deeper the deposits, the more they cost to recover, and while mining costs have risen, world tin prices have dropped 20–25% since mid-1974. As Nigerian wage scales continue their upward spiral, the economic viability of open-pit tin mining will depend on strengthening prices. For the present, the leading companies foresee stronger demand created by new industrial uses such as in iron castings and polyethylene and by the expanded popularity of pewter, a tin alloy. These trends will, they feel, keep the present scale of operations marginally profitable for the time being, but are unlikely to justify significant new capital expenditures for surface mining any time soon.

Underground tin mining, however, is another matter. The Nigerian Government is backing development of the country's first such mine, which will have a capital cost of at least \$26 million; about \$17 million will be spent for equipment. This project is described below in the profile of Gold & Base Metals, Nigeria—the private tin producing company developing the mine in partnership with the Government.

Seven mining firms account for more than 90% of Nigeria's tin production. Table 5.2 indicates their production of both tin and columbite, an ore usually associated with tin-bearing cassiterite. (Columbite yields tantalum and niobium.) There are also about 100 other operators—individuals and small firms—that use hand tools to work shallow deposits near Jos. Their work brings the average mining depth up to approximately 40 feet.

Two of the seven leading producers are profiled below.

Amalgamated Tin Mines of Nigeria, Ltd. (ATMN)

Nigeria's largest producing company, ATMN accounts for more than half the country's output. The Nigerian firm is wholly owned by Amalgamated Tin Holdings (London), in turn a

subsidiary of London Tin Corporation, which also controls mining interests in Malaysia and Australia. The Nigerian Government intends to buy into ATMN through the Nigerian Mining Corporation. (The *Third National Development Plan* includes \$8.2 million for use by the NMC in taking equity positions in privately held tin mining companies.) The participation formula had not been negotiated as of mid-1975, but whatever agreement is reached with ATMN probably will become the model for the other companies.

ATMN works its deposits principally with gravel pumps and draglines, as do the other mechanized operators. Euclid loader/dumpers also are used, and the company recently bought two Anderson-Mabor (U.K.) bucket-wheel excavators with conveyor for close to \$2 million—a purchase unlikely to have been approved under today's market conditions, according to ATMN Chairman David Dent-Young.

American equipment has served the company well. Five Bucyrus-Monegan draglines have been in service since the early 1930's, and a sixth is more than 10-year old. Other U.S. machinery lines are Caterpillar (tracked and tired vehicles) and Euclid (bottom dumpers—some U.K.-made).

In selecting equipment, ATMN customarily compares the products of leading U.S., British, and German manufacturers. The bucket-wheel

excavator chosen has a 14-ton capacity, more in keeping with the scale of ATMN operations than the six times larger units typically produced in the United States. The "Griffin 10" drilling gear from British Hydraulic Drilling Equipment Co. was recently selected over more elaborate American and German machines considered.

ATMN makes U.S. purchases through C.H. Tennant Sons & Co. of New York.

Gold & Base Metal Mines Nigeria, Ltd.

Having performed open-pit mining of cassiterite on the Jos Plateau for several decades, British-owned Gold & Base Metals now has begun development of Nigeria's first underground mining project, the Livuie Tin Mine near Ririwari in southernmost Kano State (60 miles north of Jos).

A joint-venture with the government-owned Nigerian Mining Corporation, the Livuie mine will be developed by 1978 at a capital cost now pegged at \$26-33 million—double the estimate made for the Third Plan. Some 60-70% will be for purchasing imported machinery. A large proportion of U.S.-made equipment will be employed in extracting the 900 tons per day of ore the mine will produce. All dumpers, for example, are expected to be of American manufacture; a \$35,000 Sien Brute unit already has been purchased, and another is on order from Envirotech. A Caterpillar D-8 bulldozer is likely to be an early addition.

The Livuie mine will use about 5 MW of utility power (probably from the Kano State Electricity Board or from the Nigerian Electricity Supply Company, NESCO, in Jos), but will require standby generators to operate elevators, ventilators, and other essential equipment during any interruption.

Meanwhile, Gold & Base continues to work alluvial cassiterite deposits on the Jos Plateau using gravel pumps and two Lima draglines. Pits range to 72 feet in depth. Annual expenditures for equipment and spare parts run about \$250,000.

Coal

The Nigerian coal industry is on the threshold of substantial production expansion that will require some \$45 million in new equipment for mine development and operation,¹ \$50 million for processing facilities, and about \$52 million in transportation investment.

Production of coal has declined by two-thirds from the 905,000-ton peak recorded in 1958/59.

1. The *Third National Development Plan* calls for investments of \$40.5 million, but the budgets for 1975/76 already reflects an increase of 11%.

Table 5.1.—Nigerian Investment¹ in mining and minerals development, 1975-80

(in millions of U.S. dollars)²

Tin		
Ririwari Mine ³	.....	26.3
Other	.....	16.5
Coal		
Enugu mine ⁴	.....	41.3
Other mines	.....	23.7
Transport facilities	.....	52.0
Processing	.....	50.3
Iron and steel ⁵		
Direct reduction plant(s)	.....	411.3
Mines (iron, limestone, coal)	.....	98.7
Integrated steel project	.....	1,054.4
Infrastructure, training, laboratories	.....	134.1
Other minerals		
Nigerian Mining Corporation ³	.....	89.2
Geological Survey Department		
Surveys ³	.....	19.6
Labs, offices, training facilities, quarters, land reclamation	.....	63.0
Total	.....	2,080.4

1. Public and known private sector investment.

2. Converted from Naira at ₦ 1 = \$1.645.

3. Adjusted to reflect trade source estimates of cost escalation or program expansion.

4. Adjusted to reflect 1975/76 budget increases.

5. Unadjusted Third Plan estimates.

Source: *Third National Development Plan* and mining executives' estimates.

Dieselization of the Nigerian and Ghanaian railways and the preference of electric utilities for petroleum were largely responsible. Mining of the principal deposits at Enugu was interrupted during the Nigerian civil war in the late 1960s. The 640,000-ton prewar level has not been approached since; 1974 production was about 300,000 tons.

Planning a Comeback

Now that oil prices have risen and the Nigerian economy is poised for expansion, planners foresee dramatically increased sales potential for coal, both at home and in export markets. Table 5.3 shows their optimism.

There are, however, grounds for skepticism of these demand projections. For example, research in the electric power sector (see Chapter 2) did not turn up proposed thermal generation projects that would result in more than tripling utility coal usage by 1980. By June 1975, the Nigerian Coal Corporation (NCC)—the sole national producer—had just arranged for a “pilot shipment” to a potential European customer, suggesting that exports also are unlikely to conform to the projections, at least in the first year. In addition, exports would have to compete for shipping facilities with the imports now clogging Nigerian ports.

Also, coal must be transported from the mines by the Nigerian Railways Corporation, which has had difficulty coping with present production levels. Stored in piles, the coal deteriorates both physically and chemically, which reduces its marketability.

Nigerian determination to surmount these problems represents a wide range of sales opportunities for U.S. manufacturers of mining and transport equipment. To enable sales of dramatically increased coal output, the NCC will ease transport bottlenecks by purchasing new rolling stock worth \$8.2 million. A \$43.8 million

bulk coal export terminal is planned for Bonny, in Rivers State.

Enugu Expansion

Meanwhile, the Nigerian Coal Corporation is forging ahead with measures to boost production at Enugu. In 1975 NCC invited offers for its first high-capacity longwall face mining machine, estimated to cost about \$3 million. This and other capital outlays for 1975/76 total \$6 million—11% higher than forecast in the Third Plan. In addition to the face mining equipment, this money will buy pumps (\$300,000), generators (\$165,000), transformers, and other capital goods.

The 5-year (1975–80) total for Enugu mine development should easily top \$41 million; all of this is said to represent equipment cost.

Other Mines

Nearly \$24 million will be spent to develop and expand other Nigerian coal mines. This figure includes access road construction and other such labor-intensive development in addition to equipment. The following mines are covered.

Lafia (Benue-Plateau State).—These deposits come closest to meeting Nigeria's need for coking coal and will be dedicated to the planned Ajaokuta blast furnace and steel complex. The Lafia mine is to begin producing 50,000 tons per year in 1979.

Okaba.—This open-pit mine, begun during the civil war when the Enugu deposits were alienated, will be expanded and prepared for underground mining. Intended to supply nearby cement plants and power stations, Okaba has reserves estimated at 45 million tons. New areas are to be in production in 1979.

Ogboyoga.—Mining the 65-million-ton Ogboyoga reserve is planned to supply the cement plant proposed for Yandev (Benue-Plateau State).

Table 5.2.—Output of tin and columbite by principal Nigerian producers, 1973–75

	(in long tons)			1973	Columbite	
	1974	Tin-in-concentrate 1974	1975 ¹ (Jan–June)		1974	1975 ¹ (Jan–June)
Amalgamated Tin Mines of Nigeria						
(ATMN), Ltd.	3,100	2,788	1,214	195	229	73
Bisichi-Jantar	909	745	305	654	613	220
Ex-Lands Limited	604	596	290	—	—	—
Gold & Base Metal Mines Ltd.	550	473	190	10	12	3
Kaduna Syndicate Ltd.	454	438	146	—	—	—
Tin and Associated Minerals Ltd.	34	27	21 ¹	313	386	129 ¹
United Tin Areas Ltd.	88	72	37	1	—	—

1. January–April only.

Source: *Tin International*, August 1975.

Orukpa.—This estimated 34 million-ton deposit would be developed to supply proposed cement factories. The mining chapter of the Third Plan also cites a possible coal-fired power plant at Makurdi, although this was not a part of the National Electric Power Authority development program at mid-1975.

Coal Processing Projects

Coal Preparation Plant.—This \$3.3 million facility is to remove free shale from the coal and to wash and grade the coal. The plant is scheduled for completion in 1977.

Carbonization Plant.—The Nigerian Coal Corporation will build a \$47 million plant for large-scale carbonization of Enugu Coal. Products will include coke char, electrode pitch binder, tar, and cerosote.

Iron and Steel

Nigerian ambition to produce iron and steel dates from the early 1960's, and a blast furnace complex was included in previous national development plans. A number of factors contributed to delays—one significant impediment was insufficient data on the content and quality of the Nigerian ore to be used and on the availability in Nigeria of coal suitable for coking.

With most such questions now answered, the Nigerian Steel Development Authority (NSDA) intends to press ahead—not only toward implementation of the originally planned blast furnace project—but also toward construction of two direct reduction plants.

The Integrated Steel Complex.—More than \$1 billion has been allocated for construction of a blast furnace complex at Ajaokuta, on the Niger River in the southern part of Kwara State. Soviet experts have for several years been assisting in planning the 1.5 million-metric ton capacity plant, and the NSDA expects the Soviet Union to build the blast furnace. A community to house the steelworkers will be built at an additional cost of \$95 million.

Direct Reduction Plants.—Nigerian planners estimate that the country can absorb 3.2 million metric tons of steel annually—almost 2 million more than the blast furnace capacity. With abundant natural gas at its disposal, the Government is examining direct reduction processes with the intent of building two such plants, each of 500,000 metric tons capacity, to further reduce dependence on imported steel. Sites have not yet been selected.

Mining.—Nearly \$100 million has been earmarked for developing the iron ore deposits at Itakpe to produce 2 million tons annually at the

outset and for mining coal and limestone. (This does not include coal development expenditures of the Nigerian Coal Corporation, described above.) Another \$15 million will be spent for further exploration and geological surveys for mineral inputs to the steelmaking industry.

Supporting Activities.—More than \$16 million is allotted for establishing metallurgical laboratories and a pilot plant for training and small-scale research. Workshops, offices, warehouses and other buildings are expected to cost \$13 million. A \$10 million training program is planned.

Other Minerals Development

Nigerian Mining Corporation

NMC bears responsibility for commercial development of all minerals not produced by the specialized statutory companies or authorities—the NNOC, NCC, and NSDA. Vigorous NMC management is propelling Nigeria's minerals development forward at a much faster pace than indicated in the *Third National Development Plan*. Based on progress to mid-1975, the Commerce Survey Team estimates the NMC will conduct exploration and development work valued at \$89.3 million by 1980—three times the \$30 million projected in the Third Plan, but still only about half what NMC will strive to achieve.

The Nigerian Mining Corporation takes a three-phase approach to bringing mineral deposits into commercial production. First promising deposits are identified from maps and other intelligence of the Geological Survey Department, Ministry of Mines and Power (described below), and prefeasibility studies are performed under contract by geological consultants. When these first-phase studies indicate commercial deposits, the NMC commissions second phase studies consisting of exploratory work to prove the reserve, accurately fix the location and depth of veins and lodes, and verify their concentration or purity. These second-phase studies cost \$1 million to \$17 million, of which 60–70% would represent equipment cost.

In the third phase, if exploratory findings are satisfactory, full feasibility studies are made to form the basis for commercial exploitation ventures.

As of mid-1975, NMC held completed prefeasibility studies on Nigerian deposits of gold, lime and marble, lead and zinc, lignite, tin and associated minerals, copper, barites and gypsum, and uranium. Mining and geological consultants already are being asked to submit proposals for the exploratory work on some of these mineral deposits. Other minerals to be investigated include

Table 5.3.—Projected demand for Nigerian coal, 1976–80¹

	(in thousands of tons)				
	1976	1977	1978	1979	1980
Domestic consumption					
Railway	100	100	80	80	80
Electric power	100	100	100	200	350
Cement factories	150	150	200	270	270
Iron and steel industry	—	—	50	100	150
Small industries	20	20	30	30	50
Households	30	30	40	40	50
Subtotal	400	400	500	720	950
Exports	600	800	1,000	1,000	1,500
Total	1,000	1,200	1,500	1,720	2,450

1. Years ending March 31.

Source: *Third National Development Plan*.

tungsten, diatomite, salt, clay, asbestos, and kyanite.

NMC's upward revision of mineral development plans is typified by the new goals set forth below.

Lime and Marble.—Under the Third Plan, a single mine was to have been developed at a cost of \$16.5 million. NMC management now expects to mine these materials at six or seven sites.

Stone Aggregates.—Given the level of demand created by Nigeria's construction boom, two quarries are under development instead of the one originally foreseen. Five or six are expected to be underway by 1980.

Tin and Tungsten.—Exploratory and feasibility studies will command about \$25 million beginning in 1977. The Third Plan allotted only one third that amount for all examination of new deposits of tin and allied minerals.

The Nigerian Mining Corporation also will spend about \$6 million for new buildings.

Geological Survey Department

The Geological Survey Department of the Ministry of Mines and Power is responsible for developing the fundamental knowledge of Nigeria's mineral resources and mapping the geological formations throughout the country. About two-thirds of Nigeria's area has been surveyed and mapped, and the Department is stepping up its exploratory activity under the *Third National Development Plan*. These and other programs of the Geological Survey Department are outlined below.

Aerial Surveys.—Three airborne geophysical surveys already commissioned will complete the basic aerial canvass of Nigeria's territory. The contractors—Earth Sciences Nigeria Ltd. (with Geoteresse of Canada), Hunting Geology and

Geophysics Ltd. (London), and Polservice Consulting Engineers (Warsaw)—will cover more than 150,000 square miles in the Sokoto and middle Niger region, the Chad Basin area, and the Niger Delta. The surveys will cost about \$2.8 million—somewhat higher than the Third Plan allowance.

Minerals Prospecting.—The Geological Survey Department will be looking for copper, tungsten, and molybdenum on 7,350 square miles of the Jos Plateau, for gold in 148,000 square miles of North-Central, North-Western, Kano, and Western States, and for bauxite in Western and Benue-Plateau States. Lead-zinc ore, phosphates, barites, and gypsum will be sought as well. The Commerce Survey Team estimates that the Geological Survey Department will spend \$9.5 million for this exploration—about 30% more than calculated for the Third Plan.

Groundwater Survey.—This program includes both well-siting for client organizations and a long-term survey of aquifers and basins; expenditure is now estimated at \$7.3 million.

Geological Research Institute.—To complement the present activities of the Geological Survey Department, a new Geological Research Institute will be established near the Department's headquarters at Kaduna, North Central State. The \$14.5 million Institute will research fundamental geological and geophysical problems which have not been treated by the Geological Survey Department.

Mineral and Metallurgical Research.—A \$16.5 million National Mineral and Metallurgical Laboratory will be created at Jos to provide research and testing services for mining companies and other laboratories throughout Nigeria. The nucleus of this facility will be the assay, ore dressing, and analytical labs to be established initially. Planners expect this National Laboratory

to research problems referred from the future steel complex and to investigate the possibility of producing ferrocolumbium and other ferro-alloys.

Training.—Ririwari, site of Nigeria's first underground tin mine, will be the location of an \$8.2 million Mining Institute intended to produce the trained manpower that will be needed to follow through on the country's wide-ranging minerals development program.

The Geological Survey Department will oversee construction of more than \$10 million worth of offices, laboratories, and staff quarters.

Other Activities.—Nigerian mining authorities can claim nearly half a century of seeing to the reclamation of pit-mined lands. The *Third Plan* allots \$3.3 million for continuing this policy.

A Nigeria Atomic Energy Board is to be created with a start-up budget of \$8.2 million for the 1975-80 period.

EQUIPMENT AND SERVICE REQUIREMENTS

All of the equipment and many of the services required to execute Nigeria's mining program will have to be imported.

Equipment cost will account for 60-70% of the expenditure on NMC's exploratory studies; other mining projects may be more capital intensive or less so. Applying even conservative estimates of the machinery components of the various undertakings yields an equipment requirement total of over \$930 million—not counting the cost of construction machinery for the building programs of the several mining organizations. And even if the integrated steel project, the largest single effort, is begun only in the last year of the *Third Plan*, spending for equipment still would average about \$100 million annually through 1980.

Mining industry imports of different types of equipment are harder to quantify. Drilling equipment for core samples or for blast holes is not distinguished in Nigerian statistics from that used for drilling oil and water wells; the total was \$7.9 million in 1974. Excavating machinery (\$15.9 million) may be for the construction industry more often than for mining. Imports of other mining industry items, such as spare parts for excavating machinery (\$48.9 million), mineral crushing machinery (\$14.5 million), and pumps (\$7.8 million) are similarly divided among several user industries. Mining requirements for some of these types of equipment are discussed below.

Drilling Equipment.—An equipment complement probably will be required for each of the NMC exploratory studies. These usually will be done under separate contracts, and each

contractor is expected to amortize the cost of this and other necessary equipment on the individual job.

More drilling equipment will be needed for the national ground-water survey and for the continuing operations of the various mining companies.

Excavating Machinery.—Requirements range from general-purpose power shovels and other digging equipment to specialized gear such as the NCC's longwall mining machinery (a second machine will be purchased 1976-78). Open-pit recovery will continue to be the mainstay of Nigerian tin and coal mining for the next few years at least, suggesting need for additional draglines and other surface-working equipment. Most of this demand will be for coal rather than tin mining.

Handling and Transport Equipment.—Dumpers, loaders, rail wagons, and other transport machinery will be needed for every new or expanding mining activity described above. In addition to the \$8.2 million purchase of coal cars by the NCC, the Steel Development Authority will buy rolling stock to carry iron ore and coal. Anticipating prompt completion of Nigerian Railways' track conversion program (or further delay for the steel complex), NSDA officials have said they are interested only in standard gauge rail equipment.

Because of present transport bottlenecks, coal production is double-handled: mine to storage, then storage to shipment. This will add to machinery requirements, as production will increase faster than transport capacity.

Pumps.—In wet Nigeria, water must be removed from most excavations. Expanded operations at the Enugu coal mines require \$330,000 worth of new pumps in 1975/76, and an NCC planner estimates that "at least \$200,000" will be spent on pumps and pump parts in each subsequent year. Special pumps also will be needed; the coal export terminal probably will use slurry pumps. Gravel pumps account for about 80% of Nigeria's tin recovery.

Power Machinery.—All of the mining activities must have standby generators to carry essential loads. Coal mining engineers report utility power often fails and is restored one phase at a time, jeopardizing equipment designed for three-phase operation. The NCC is interested in switching apparatus that would automatically substitute standby power whenever full, three-phase utility service is interrupted, reconnecting only when all phases are restored. Also useful would be switchgear that would discriminate among loads, supplying only certain circuits carrying essential equipment when standby generators are in use.

Laboratory Equipment.—Substantial amounts of analytical apparatus and instrumentation will

be needed to equip the four new laboratories planned: the Geological Research Institute at Kaduna, the National Mineral and Metallurgical Laboratory at Jos, the NSDA laboratory at Ajaokuta, and a research facility for the new Nigerian Atomic Energy Board.

Services

The most tangible, immediate prospects for the application of U.S. technical services to Nigeria's minerals development program are in the NMC's exploratory studies, the coal export terminal design, and the two direct reduction steel plants. It also is possible that the NSDA might at some point seek additional expertise to achieve faster progress on the blast furnace project.

Further along in the minerals program, NMC will require thorough feasibility studies for commercial exploitation of deposits surveyed earlier. Ultimately, the services of contractors or joint venture partners would be solicited for actually mining and marketing the minerals.

Once designed, the coal export terminal probably will be built by a foreign construction company.

COMPETITION

Prominent U.S. lines such as Bucyrus-Erie, Caterpillar, and Euclid have been well-known and highly regarded in Nigerian mining circles for decades. However, in some respects, American companies could be better positioned to capture more of Nigeria's mining industry business. NCC officials extended a tender deadline last summer in the hope of receiving an American bid on their first longwall face mining machine; apparently no U.S. manufacturer had developed one beyond the prototype stage. Some mining executives' comments suggest that American producers of medium and smaller capacity excavating equipment may have overlooked Nigeria, not providing product information to customers there.

Still, U.S.-made equipment and parts account

for a substantial portion of Nigerian imports. One-third of 1974 imports of excavating machinery came from the United States, and almost half the spare parts originated here. That the U.S. share of the spares market is significantly higher than that of new machinery sales is due more to the superior durability of American equipment than to erosion of its share of new sales. "Ruggedness" is the first word used by mining executives in Nigeria to describe U.S.-made products. "All of our dumpers probably will be from America," said a manager of the new Ririwari underground tin mining project.

Most of the competition in mining machinery comes from British, Dutch, and Germany suppliers.

For exploration and survey work, the services of a number of European and North American contractors have been used with none clearly predominating. The heads of both the Nigerian Mining Corporation and the Geological Survey Department—the two best clients to date—have contracted with American firms in the past and expect to do so again, but U.S. companies are not as well represented as European companies in the files from which proposal invitations are made.

MARKETING APPROACHES

Statutory corporations—the Nigerian Coal Corporation, Nigerian Mining Corporation, and National Steel Development Authority—are subject to the same approval requirements as other organs of the Federal Government (see "Government Procurement" in Chapter 1).

Larger tenders are publicly advertised, but much of the procurement of both goods and services, by both public and private mining organizations, is approached by inviting known suppliers to submit bids or proposals. It is important, therefore, to be sure that product information and service capabilities are recorded in the files of potential customers. A personal presentation to the buying officers and appointment of local representation greatly strengthen sales prospects.

Chapter 6

FINANCIAL INSTITUTIONS

HIGHLIGHTS

Nigerian financial institutions have been expanding at an accelerated rate in both numbers and assets. For example, commercial banks, the largest and fastest growing segment of Nigeria's financial complex, had assets totaling close to \$5 billion as of January 1975—roughly double the level of just one year earlier.

Nigerian commercial banks provided loans and advances to the private sector in 1974 amounting to \$1.5 billion, an increase of 23.3% over the figure for 1973. Continued growth of commercial banks is expected throughout the 1975–80 period.

Similarly, the insurance industry has been growing at an unprecedented rate. An informed industry source estimates that the industry's earned premiums reached \$147 million in 1974 and predicts an average annual growth of 35% over the next few years.

The growth of Nigeria's financial institutions offers excellent sales opportunities for U.S. equipment and supplies used by the banking and insurance industries, especially electronic data processing equipment, business machines, and security systems.

SECTOR ANALYSIS

At the top of Nigeria's financial structure is the Central Bank, which functions under the Federal Ministry of Finance. Commercial banks, merchant banks and insurance companies, among financial institutions, have the strongest demand for capital equipment and the best prospects for future growth, and the Commerce Survey Team concentrated on these segments of the market.

Specialized institutions under the Federal Government include the Nigerian Agricultural Bank, the Nigerian Industrial Development Bank, and the Nigerian Bank for Commerce and Industry. In addition, provisions for the establishment of a Federal Mortgage Bank as well as a Nigerian National Re-Insurance Company and an African Re-Insurance Company have been included in the *Third National Development Plan*.

Other financial institutions include building societies, acceptance houses, clearing houses, Federal and state savings banks, state development banks, co-operative banks, and the Postal Savings Union. There also is a Lagos Stock Exchange; its yearly transactions are less than the

daily transactions of the New York Stock Exchange.

Commercial Banking

The rapid economic growth rate in Nigeria over the last few years has stimulated the expansion of commercial banking in the country. At the end of 1974 there were 16 commercial banks with 387 branch offices, compared with 196 in 1963. (Bank of America is the only U.S. commercial bank operating under its own name in Nigeria.) Of the 16 commercial banks, half were solely Nigerian owned. Furthermore, the Federal Government recently acquired 40% equity shares in the three largest foreign-owned banks—Barclays, Standard, and United Bank of Africa.

The majority of the state governments have equity holdings or large financial deposits in indigenous commercial banks. The resulting state influence has been a major stimulus for the expansion of branches in the rural areas. State and Federal support also assisted in the rehabilitation of commercial banks severely affected by Nigeria's Civil War.

Traditionally, commercial banks have provided short-term financing, although several larger banks have recently begun to offer restricted low-risk, medium-term loans to the private sector. (See table 6.2 for distribution of outstanding loans by economic sector.) Loans made in 1974 totaled \$1.5 billion, representing an increase of \$366 million, or 23.3% above the 1973 level. Major factors contributing to this rise were increased lending to manufacturers and credit extended to individuals purchasing shares in the businesses affected by the *Nigerian Enterprises Promotion (indigenization) Decree*. This Decree provides for government loan guarantees to nationals investing in foreign-owned local companies.

The trend toward progressive commercial banking in Nigeria is best exemplified through two of its largest banks discussed below.

Barclays Bank of Nigeria

Barclays Bank of Nigeria, Ltd., an affiliate of the British bank of the same name, is the largest commercial bank in Nigeria. It has over 90 branch offices and employs over 2,600 people. Of these, 685 are Nigerians in supervisory and managerial positions.

Table 6.1.—Growth of Nigerian commercial banks by number of branches

	1963	1974
African Continental Bank	26	34
Arab Bank (Nigeria) Ltd.	1	3
Bank of America (Nigeria) Ltd.	1	2
Bank of India (Nigeria) Ltd.	1	2
Barclays Bank of Nigeria Ltd.	57	89
Bank of the North Limited	4	24
Co-operative Bank Limited	4	15
Co-operative Bank of Eastern Nigeria Limited	1	11
International Bank for West Africa Ltd. ¹	2	5
Mercantile Bank of Nigeria Ltd.	0*	7
National Bank of Nigeria Ltd.	26	56
New Nigeria Bank Ltd.	0*	9
Pan African Bank Ltd.	0*	6
Standard Bank Nigeria Ltd. ²	49	84
United Bank for Africa Ltd.	9	28
Wema Bank Limited ³	8	10
TOTAL BRANCHES	196	387

*Nonexistent.

1. Formerly Banque de L'Afrique Occidentale.

2. Formerly Bank of West Africa Limited.

3. Formerly Agbonmagbe Bank Limited.

Barclays is one of the most extensive users of sophisticated business equipment among Nigeria's commercial banks. See "Equipment Requirements" for Barclay's equipment needs.

At the end of 1974 Barclays had deposits totaling \$696.8 million, as compared with \$498.6 million in 1973; outstanding loans of \$260.8 million, compared with \$205.3 million in 1973; and capital and reserves of \$826.4 million, compared with \$627.5 million in the previous year.

United Bank for Africa

United Bank for Africa (U.B.A.), a consortium of British, American, French and Nigerian banking interests, is currently the most rapidly expanding bank in Nigeria. With only nine branches prior to 1963, U.B.A. has since expanded to over 30 branches and now ranks third among the major commercial banks. It employs a staff of 1,355 of which 234 are Nigerian officers.

U.B.A.'s deposits rose from \$187.7 million in 1973 to \$276.2 million in 1974 and outstanding loans and advances increased from \$94.0 million to \$175.0 million in the same period.

With the planned installation of a centralized IBM computer system in its head office by the end of 1975 as well as Burroughs mini-computers tailored for each branch office, U.B.A. will have

the most sophisticated computer hardware in the Nigerian banking community.

In an effort to diversify its banking operations and at the same time accommodate the investment limitations of the Commercial Banking Decree, U.B.A. plans to establish a leasing company in the near future.

U.B.A.'s main branch is located in a centrally air-conditioned high-rise building in downtown Lagos. For security purposes, four closed circuit televisions have been installed in the building, and guards maintain 24-hour security watches. The bank also is equipped with Chubb vaults and safes.

Merchant Banking

Merchant banking is growing in order to accommodate the increasing demand for medium-term financing. Whereas commercial banks finance foreign trade and make personal and commercial loans primarily over the short term, merchant banks specialize in medium-term loans (5 to 7 years) such as for plant expansion. There are six merchant banks presently operating in Nigeria, with several others being considered for licensing by the Central Bank in the near future. The majority of these banks are less than a year old and their financial assets are relatively small compared with those of the commercial banks. U.S. banks having Nigerian merchant bank affiliates include First National Bank of Chicago, First National City Bank, Chase Manhattan Bank, and Morgan Guarantee Trust Co.

Besides the extended financing offered by these banks, their lending activities differ little from those of the commercial banks. However, their growth will help increase syndication of loans and the creation of an acceptance market within Nigeria. This loan syndicating or consortium financing will stimulate the growth and development of various sectors of the economy and assist individual banks in taking an active role in major industrial development projects.

Merchant banking regulations which are expected to be released by the Central Bank in the near future should broaden and clarify the role of these banks.

Specialized Banking Institutions

Nigerian Bank for Commerce and Industry.—The Nigerian Bank for Commerce and Industry (NBCI), established under the NBCI Decree of May 5, 1973, provides loans to Nigerian citizens, institutions and organizations for medium- and long-term investments fostering industry and commerce.

Since its inception NBCI has opened five branches and has assisted in the financing of textile, timber and food processing projects, in

addition to road transport equipment purchases. The Federal Government is expected to lend NBCI over \$164 million during the Third Plan period to further its development assistance to Nigerian commerce and industry.

Nigerian Industrial Development Bank (NIDB).—NIDB incorporated in 1959 with the participation of several foreign financial institutions including the Chase Manhattan Bank. The Bank provides long-term financing for Nigerian industrial development projects. Since that time, it has provided credits amounting to over \$93 million in the manufacturing and fishing areas. The Bank also plans to help finance the development of tourism. Furthermore, under the Third Plan, the Federal Government plans to channel about \$567 million to NIDB to increase its assistance activities.

Nigerian Agricultural Bank.—The Nigerian Agricultural Bank (NAB), established on March 6, 1973, provides financial assistance to state, cooperative, and individual agricultural projects. NAB has provided over \$111 million in financing for various agricultural projects since its conception.

Further discussions on the activities of the specialized institutions listed above can be found in the sections of this Survey on manufacturing and agriculture.

Insurance Companies

There are an estimated 89 insurance companies presently operating in Nigeria, 75 of which are indigenous. Over 70% of the insurance market is controlled by the following six largest companies:

National Insurance Corporation of Nigeria
The Royal Exchange Assurance Nigeria, Ltd.
The United Nigeria Insurance Company, Ltd.
The Lion of Africa Insurance Company
American International Insurance Company
Guinea Insurance Company Limited

Current statistical data on insurance operations have not been made available. However, the National Insurance Corporation of Nigeria (NICON), a Federal institution and the largest insurance company in the country, estimates that total earned premiums amounted to \$146.7 million in 1974 or an increase of 50% over the \$97.8 million figure for 1973. The Managing Director of NICON, Mr. F.O. Ogunlana, feels that the insurance market will continue to grow at an average annual rate of 35% over the next few years.

Insurance companies are regulated by the Controller of Insurance (Ministry of Trade). The basic legislation by which insurance companies operate includes:

Table 6.2.—Commercial bank sectoral distribution of credit
(in millions of U.S. dollars)¹

Category of borrower	End of Period			Percentage change between	
	Dec. 1973 (a)	Nov. 1974 (b)	Dec. 1974 (c)	(a) & (c) (d)	(b) & (c) (e)
<i>Production</i>	435.8	635.0	644.6	38.0	1.5
Agriculture, forestry and fishing	32.8	43.7	44.3	25.9	1.5
Mining and quarrying	9.6	21.1	19.8	93.7	-6.2
Manufacturing	227.0	412.8	421.0	41.9	2.0
Real estate and construction	116.4	157.4	159.3	27.7	1.2
<i>General Commerce</i>	417.4	462.6	464.4	3.8	.4
Bills discounted	16.9	27.2	22.6	25.2	-16.8
Domestic trade	139.9	162.4	159.8	6.6	-1.6
Exports	129.0	147.4	149.4	8.0	-11.3
Imports	131.6	125.6	132.6	-6.0	5.6
<i>Services</i>	484.0	116.1	119.2	32.4	2.7
Public utilities	5.5	12.4	11.9	102.8	-3.9
Transport and communications	78.5	103.7	107.3	27.5	3.5
<i>Others</i>	208.0	286.7	285.5	28.1	-.4
Credit and financial institutions ²	17.9	26.5	20.5	6.8	-22.7
Governments	26.8	48.9	51.6	80.1	5.7
Personal and professional	65.3	96.8	101.6	45.1	5.1
Miscellaneous	98.0	114.5	111.8	6.4	-2.4
Total	1, 145.2	1, 500.4	1, 513.7	23.3	.9

1. Conversion factors 1973: ₦ 1=\$1.52; 1974: ₦ 1=.62.

2. Includes money at call outside Central Bank.

The Insurance Companies Act of 1961
The Marine Insurance Act of 1961
The Insurance Miscellaneous Provisions
Act of 1964
The Companies Decree of 1968

Micrographics systems and supplies
Electronic calculators, desk and portable,
both display and printing
Reprographic equipment
Fire protection and security systems

Under these regulations insurance companies are required to incorporate in Nigeria. They also must invest 40% of their investment funds in Nigeria, with not less than 25% in government securities and not more than 10% in properties. Foreign insurance companies have also been required to sell 49% of their equity holdings to the Federal Government. In addition, all Nigerian insurance companies must re-insure 10% of their business with NICON.

Most of the insurance companies operating in Nigeria are small, with limited capital and insurance capabilities. To improve the efficiency of these institutions, the Ministry of Trade is expected to issue decrees raising the capital requirement of these companies. Such decrees should encourage the amalgamation of the small but viable companies into much larger corporate entities and will eliminate marginally effective companies.

While government regulations only require motor vehicle insurance (liability) and workers compensation insurance, all lines of insurance are available in Nigeria (see table 6.3).

The weak domestic re-insurance market has prompted major companies to re-insure over 50% of their premiums overseas. The high premiums chargeable for marine insurance have made this line particularly attractive on the international re-insurance market. The establishment of a Nigerian National Re-Insurance Company as well as an African Re-Insurance Company during the Third Plan period is expected to encourage more insurance companies to re-insure in Nigeria. The recent Government acquisition of 49% equity in the foreign-owned insurance companies is also expected to strengthen the domestic re-insurance market.

EQUIPMENT REQUIREMENTS

The use of advanced business equipment is gaining acceptance among financial institutions in Nigeria. As financial institutions continue their rapid growth, they seek improvement in operational efficiency. This offers excellent sales potential for advanced U.S. equipment. Officers of these institutions have particularly noted demand for the following types of equipment:

Computers and related equipment
Accounting and bookkeeping equipment
Electric and manual typewriters
Advanced data storage and retrieval
equipment

Nigeria is dependent upon imported business equipment. This situation is not expected to change significantly over the next 5 years.

Imports of business and computer equipment, security equipment, and rotary offset printing presses amounted to \$15 million in 1974, reflecting an annual average growth rate of 10% since 1972. Industry sources believe these imports will reach \$18 million by 1975 and climb to \$33 million by 1980.

The United Kingdom, Germany and the United States are the major suppliers to the Nigerian market. The U.S. market share has been growing steadily and should continue to advance as financial institutions continue to expand and adopt more advanced business methods.

The total country market for business equipment, including typewriters, adding, calculating, and accounting machines, and duplicating machines, amounted to \$5.5 million in 1974 and is expected to reach \$9 million by 1975 and \$15 million annually by 1980. The major suppliers during the period 1972-1974 were the United Kingdom, Germany and the United States, with the United Kingdom having the largest market share at 40%.

With the market volume projected to nearly double by 1980, U.S. firms selling to financial institutions will have exception opportunities for sales. The soaring volume of financial transactions, the shortage of qualified office workers, and the very satisfactory credit rating of most of these buyers suggest a ripe opportunity for American firms to share in the Nigerian "boom."

Typewriters.—Typewriters are perhaps the most sought-after equipment in the Nigerian business community. As a result, availability has become the most competitive factor for distributors in this product line. Imports of this equipment amounted to \$2 million in 1974. Observers feel that this volume should rise from an estimated \$3.5 million in 1975 to \$5 million in 1980. Over 50% of the typewriters imported are said to be manual. Lack of reliable servicing as well as the frequency of electric power failures have contributed to a traditional preference for manual typewriters. Distributors believe that this trend will change rapidly as more adequate servicing develops and the electrical power supply becomes more dependable.

The major typewriter distributors include National Cash Register (NCR) Nigeria Ltd., Business Equipment and Machinery Ltd. (BEAM) representing Olivetti and Burroughs, and IBM Nigeria Ltd. Nigerian end users point to

NCR's operations as a model other firms could well follow.

Reprographic Equipment. — The total market for reprographic equipment amounted to \$1.6 million in 1974. Total imports are expected to reach \$2.5 million in 1975 and \$4 million by 1980. The United States, Germany and the United Kingdom are the major suppliers of this equipment.

Most financial institutions have not standardized on a particular brand and generally maintain at least one copier and one duplicating machine. AB Dick, IBM, NCR, Nashua-Savin and APECO are leading suppliers of this equipment. Xerox has recently made an aggressive entry into the Nigerian copier market.

Barclays presently utilizes a variety of duplicators and copiers. However, to be assured of equipment availability and to cope with maintenance problems, they recently have standardized on Xerox.

Adding, Calculating and Accounting Machines. — The market for electric and electronic desk calculators has been growing steadily over the last few years with total imports rising from less than \$1 million in 1972 to \$1.5 million in 1974. Desk calculators can be found in almost every financial office. Demand has become so great that ability to deliver has become the major competitive factor.

Distributors predict that the total market in this field will reach \$3 million by 1975 and up to \$6 million by 1980. The major suppliers of this equipment have been Japan, the United States and the United Kingdom. The United States market share was 10% in 1974, with the United Kingdom having the largest share—44%. NCR claims the major portion of the business, followed by Burroughs. In the burgeoning market for pocket calculators, Texas Instruments products are gaining in acceptance. Barclay's accounting operations are handled by NCR electric accounting machines and bookkeeping equipment of various makes. Its offices are supplied with a variety of small electric and manual calculators.

Computers and Related Equipment. — Computers are still relatively new in Nigeria, and a growth market is predicted. Of the 16 commercial banks in the country only two are presently operating their own computer systems. The six largest insurance companies also operate their own computer systems. Other utilize those of their parent companies or have accounts with major computer processing companies in the country. The Royal Exchange Assurance Nigeria Limited, reportedly the second largest insurance company, plans to establish a data processing center by the end of 1975. It expects to have a complete training program for EDP personnel which will be available to smaller insurance companies at nominal cost.

Table 6.3.—Insurance lines — 1974

	Percent of total premiums	Percent of premiums paid in claims
Life	10.5	NA
Fire	17.0	35
Marine	12.0	NA
Accident	7.0	35
Motor	33.0	52
Workmen's		
Compensation	5.0	40
Miscellaneous	15.5	60

Source: Nigeria Insurance Company estimates.

Observers feel that the rapidly increasing volume of financial transactions and the growing trend toward more sophisticated equipment ensures that the majority of financial institutions in Nigeria will install computer systems in the foreseeable future.

In the past, unreliable telecommunications and electrical power networks have been major considerations in the decision not to utilize centralized computer systems or data transmission in Nigerian financial institutions. To increase their operating efficiency many institutions have begun to consider the use of mini-computers such as the NCR 299 and 399 and the Burroughs L5000. Several banks plan to install such computers within the next year.

Barclays' head office in Lagos batch processes at the NCR service bureau. Its major branches have installed Burroughs L5000 mini-computers.

The market for computers and related equipment in 1974 was estimated at \$1.5 million. U.S., U.K., and Japanese firms are leading suppliers of this equipment. The U.S. market share has been averaging about 10% since 1972. In view of the planned telecommunications and electric power distribution improvements envisioned during the Third Plan period, specialists in the field feel that computer imports should reach \$4 million by 1975 and rise to \$7 million by 1980.

Micrographics Equipment. — Micrographics equipment has only recently begun to be used by financial institutions. Only one commercial bank and a few of the larger insurance companies currently utilize this equipment. Many banks and insurance companies have indicated an interest in the use of microfilm but still believe that film processing and equipment maintenance are major problem areas that discourage the purchase of this equipment for use in Nigeria. Companies in the microfilm field need to conduct educational programs to overcome these obstacles. At present, institutions utilizing microfilm have their film processed abroad.

Imports of micrographics equipment in 1974 amounted to \$1.5 million, mostly supplied from

the United States, the United Kingdom, and Germany. Kodak and Bell & Howell are among the leading U.S. suppliers of micrographics equipment to financial institutions in Nigeria. Experts in this field feel that anticipated file storage problems eventually will force the use of microfilm on a much larger scale, with imports estimated at \$2 million in 1975 and double this annual level by 1980.

The legality of microform documents has not yet been fully accepted by Nigerian courts. However, international equipment marketers have successfully developed other markets without microform having been legally accepted. The rapid economic expansion now underway should bring about conditions favorable to dynamic growth of sales of U.S. micrographic equipment.

Fire Protection Equipment.—Fire protection equipment has not had a big sales volume among financial institutions but its need is recognized. One reason is that most banks and insurance companies lease their buildings from private owners. Building owners generally install minimum fire safety equipment as required by the fire code. These requirements basically include fire extinguishers in certain areas of the building and fire exits throughout the building.

For fire protection, Barclays has soda-acid and foam extinguishers as well as fire alarms strategically placed throughout their offices. Guthrie Nigeria Ltd. is a major supplier of fire extinguishers and fire alarm equipment.

Total imports of fire extinguishing equipment amounted to \$1.5 million in 1974 and are expected to reach \$2 million by 1975. Moreover, distributors of this equipment anticipate more stringent fire codes which will boost imports to \$4 million by 1980.

Security Equipment.—Financial institutions are developing greater interest in security equipment and systems. Most banks and insurance companies maintain at least one vault and safe and presently employ security guards around the clock. There is one major distributor of vault and safe equipment in Nigeria, representing a British firm (Chubb).

The increasing incidence of bank theft and

burglary has encouraged more banks to seek security equipment. One bank recently installed closed circuit television in its main branch, and two other banks are considering doing the same. At Barclays, for example, security systems were not a major concern until recently, but Mr. John Carter of Barclays indicates that the main branch is considering the use of closed circuit television in the near future.

Experts in the field predict that imports of security equipment will reach \$1 million in 1975 and \$3 million by 1980.

Printing Equipment.—The total market for printing equipment amounted to \$5 million in 1974. The market for such equipment among financial institutions, however, has been principally limited to insurance companies. The requirement that all bank checks and other financial documents be printed by The National Security Printers and Minting Company, owned by the Federal Government, has discouraged most commercial banks from acquiring printing equipment. Major insurance companies generally have their own printing facilities. Most of these companies are equipped with at least one photo-offset printing press. This equipment is predominantly of German origin (Heidelberg).

The limited volume of other printing requirements has encouraged Barclays, among others, to contract their printing with major Nigerian printing companies. Academy Printers and C.S.S., Church and School Supply Co., are two such printing companies. (See Chapter 19, Printing.)

New Equipment Essential

The dramatic growth of Nigerian financial activity is forcing banks and insurance companies to adopt new techniques and equipment to operate more efficiently at a higher volume of transactions.

The time to introduce new products is in the present, high-growth period, when systems and practices are being chosen that will become standards for long-term expansion and procurement.

Chapter 7

EDUCATION

HIGHLIGHTS

Nigeria's educational facilities and programs are scheduled for massive expansion and improvement under the *Third National Development Plan*. National expenditures on education during the 1975-80 period are estimated at \$4 billion. The Third Plan includes extensive school building construction and the adoption of new educational techniques and equipment. This 5-year program relates to all levels of the Nigerian educational system—primary, secondary vocational, university and special education.

Over 50% (\$2.2 billion) of programmed funds will go for construction. Although much of the construction work is expected to be done by local contractors, opportunities will exist, particularly on the larger projects, for American contractors who are registered with the Nigerian States in which they want to do business (see Chapter 13, Building Construction).

A growth market exists for certain U.S.-origin textbooks, school supplies, and office equipment. There are sales opportunities for all kinds of audio-visual equipment, science and math aids, and language and science laboratory equipment. Nigeria's \$100-million library expansion program will also include good prospects for U.S. sales of all kinds of books and library equipment.

EQUIPMENT, MATERIAL, AND SERVICE REQUIREMENTS

Nigeria will spend roughly \$1.8 billion on equipment, materials and non-construction services during the Third Plan period. The best opportunities for American suppliers generally fall in the higher technology categories and at the higher educational levels. Most U.S. sales will be in the following areas.

Audio-visual equipment.—Nigerian educators are beginning to seriously consider the potential of advanced technology in multiplying the effectiveness of scarce teacher resources. Several authorities are examining closed circuit television (CCTV) system capabilities (see Sector Analysis). Significant quantities of projectors and other visual aids also are expected to be required. There is less demand for audio systems, such as language laboratories.

Science laboratory and vocational workshop equipment.—At least \$55 million will be spent for this equipment for secondary education and post-secondary vocational training—particularly in the six northernmost Nigerian States. Planners attach great importance to training large numbers of Nigerians in basic industrial skills to provide the manpower requirements for the country's ambitious economic development goals.

Textbooks and other teaching materials.—Near term sales of U.S. texts and instruction materials will be largely limited to university clients. Prospects are especially good for math and physical sciences course materials. At the secondary level, and to an even greater extent at the primary level, sales of American instruction materials as used in the United States will be difficult. However, collaboration with local educators to bring primary and secondary texts into conformity with Nigerian curricula and style preferences could result in substantial sales at these levels. Given the volume of materials that will be required, some American publishers may find the effort worthwhile.

Teaching services.—Nigeria's acute shortage of teachers is reflected in attempts of its universities to recruit faculty members abroad; several universities have taken ads in major U.S. newspapers in an effort to attract American instructors. Although this recruiting has been primarily directed toward individuals, American colleges and universities with excess capacity have opportunities to develop cooperative programs with Nigerian counterparts—particularly in agriculture, medicine, and engineering.

COMPETITION

The expanding and evolutionary nature of the Nigerian educational market should motivate progressive U.S. firms to overcome present competitive advantages of established European suppliers. To do this, American companies will have to recognize and cope with certain inhibiting factors.

Until now, the Nigerian educational system has been conservative in its orientation and application of new techniques. However, there is a developing trend away from traditional educational approaches, weakening the dominance of traditional suppliers. U.S. firms offering new

Table 7.1.—Education: Capital programs by government
and activity categories, 1975–80
(in millions of U.S. dollars)¹

Government	Secondary education			Post secondary technical	Teacher education	High educ.	Adult educ.
	Primary	secondary schools	secondary technical				
Federal	493.5	845.2	2.5	195.7	506.2	343.7	1.6
Benue-Plateau	—	74.0	3.0	12.3	8.2	3.3	.3
East-Central	—	65.8	6.1	16.5	16.9	—	—
Kano .....	.2	74.0	8.3	4.1	—	3.3	.8
Kwara	—	32.9	13.2	15.3	—	3.3	2.7
Lagos	—	19.6	9.9	8.2	.6	—	—
Mid-Western	—	43.4	16.5	3.3	9.2	18.4	1.6
North-Central	—	77.3	14.8	9.9	4.9	7.2	—
North-Eastern	—	82.3	36.6	4.1	—	3.3	2.9
North-Western	1.6	65.2	4.9	6.6	9.9	3.3	.4
Rivers	—	74.0	16.9	16.5	.8	—	.3
South-Eastern	—	70.7	5.7	8.2	9.9	—	.3
Western	—	65.8	7.4	9.5	—	28.5	.4
Total	495.3	1,590.2	145.8	310.2	566.6	414.3	11.3
Percentage expenditures by levels of education	12.1	39.8	3.6	7.6	13.7	10.1	.3

Government	Student financing	Special educ.	Special sixth form institutions	Archives antiquities, others	Total	Percentage expenditure by government
Federal	204.0	—	66.6	47.3	2,706.3	67.5
Benue-Plateau	13.2	1.6	—	.3	116.2	2.9
East-Central	16.5	1.1	—	—	122.9	3.1
Kano	13.2	1.0	7.4	.3	112.6	2.8
Kwara	6.6	.7	—	—	74.7	1.9
Lagos	8.2	3.3	—	—	49.8	1.2
Mid-Western	6.6	—	1.0	—	100.0	2.4
North-Central	8.2	.5	—	—	122.8	3.0
North-Eastern	8.2	—	9.9	1.6	148.9	3.7
North-Western	8.2	.3	—	3.7	104.1	2.6
Rivers	13.2	.5	—	—	122.2	2.9
South-Eastern	8.2	.1	4.0	—	107.1	2.7
Western	16.5	—	4.9	1.2	134.2	3.3
Total	330.8	9.1	93.8	54.4	4,021.8	100.0
Percentage expenditures by levels of education	8.1	.2	2.3	1.4	100.0	

1. Converted at the rate of ₦ 1 = \$1.645.
Source: *Third National Development Plan*.

educational techniques and materials should find an attentive audience to their proposals.

The British currently exert the strongest influence in meeting the needs of the education sector. This is particularly true for textbooks. The big three in Nigerian textbooks—Macmillan, Longman, and Oxford University Press—have long had subsidiary operations within the country and have the reputation locally for producing books designed to meet the special needs of Nigeria. Furthermore, all employ Nigerian personnel at every level of their local operations. To get set for the gigantic future book market, Oxford University Press has had seven editors with supporting staff working full-time since 1974.

A few American suppliers of textbooks are presently represented through Nigerian firms.

The British advantage in providing many educational supplies and services is built-in, due to Nigerian educational and academic standards that have been traditionally based on the British system of education. Materials and services originating from the United Kingdom will continue to have an edge in English, law, most vocational subjects, and correspondence courses. The fact that most of Nigeria's leading educational planners and administrators received at least some of their professional training in the United Kingdom has also oriented Nigeria toward English firms. Nigerians are accustomed to British

spelling, terminology, and idioms. Thus, the major marketing challenge for American suppliers will be to thoroughly acquaint Nigerian educators with U.S. educational techniques and materials.

Already, Nigerians have begun to show a growing interest in U.S. educational goods and services. Approximately 10,000 Nigerians are currently studying at American universities, and many of the thousands which have returned home are taking up administrative, teaching and related educational careers. The Commerce Survey Team found throughout Nigeria an unsatisfied interest in U.S. textbooks, educational aids and specialized equipment for the fields of business, medicine, the physical sciences, mathematics (particularly the new math), engineering, non-African languages (excluding English), health science, and agriculture.

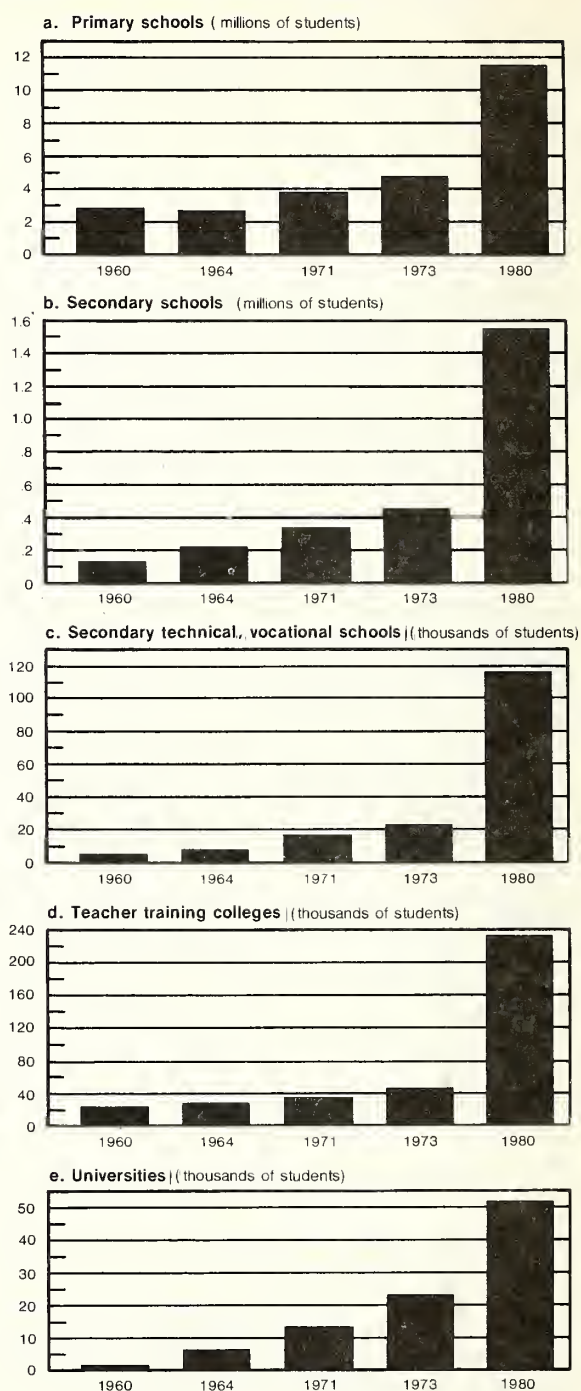
Texts and educational aids for primary and secondary education in those subjects which have moral, social, and cultural overtones should be treated largely within a Nigerian or African context. U.S. firms may best be advised not to enter this market unless subsidiary or joint venture operations in Nigeria are a possibility.

Relative to textbooks, educational aids, and audio-visual materials, series or collections are preferred to isolated items. Teachers' guides and instructors' manuals are in demand. Illustrated presentation is stressed, but particularly in books, line drawings are often preferred over costlier photo illustration. Where applicable, particularly at the primary level, materials are expected to be presented in story form and to incorporate moral and national values as well as practical knowledge. Materials should be simple and presentations direct. Textbooks need not be elaborate, e.g., few textbooks are hardbound.

Price, delivery and servicing considerations also are important to the Nigerian customer. Competitive prices and prompt delivery are important for all products. Service, including installation and maintenance, is also a necessity where technical facilities, such as audio-visual language laboratories and science centers are involved. Companies like Philips (Netherlands), which provides much of Nigeria's current needs in these areas, have attained their eminence through their service capability.

Technological or status considerations which might offset a higher price for a particular product are generally lacking. However, this could change with the entry of more U.S. firms. In theory, the costs resulting from shipping charges and import duties, would make it more difficult for an American product to compete with its locally manufactured counterpart. However, the limited number and types of educational products produced in Nigeria essentially leave the door open for most U.S. suppliers.

FIGURE 7.1—Enrollment in Nigerian schools



Source: Third National Development Plan 1975-1980

SECTOR ANALYSIS

The Nigerian Educational System

Education has always received a high priority in Nigeria's development planning, manifesting the

belief that education is the means to social and economic advancement. The *Third National Development Plan* reflects this emphasis by allocating \$4.1 billion for the improvement and expansion of educational facilities and services throughout the country. Of this total, the Federal Government is expected to provide \$2.7 billion and the 12 State Governments collectively to supply \$1.3 billion. Construction expenditures alone are estimated at \$2.2 billion or 53% of the total. Within the entire educational system, secondary education has been allotted the largest sum of money, \$1.74 billion (43%) followed by primary education, \$495 million (12%), and higher education \$414 million (10%) (see table 7.1).

Primary Education

Primary education was exclusively the responsibility of the State Governments until 1974. In that year the Federal Government announced its ambitious Universal Primary Education (UPE) plan and asserted its responsibility for financing its achievement. Under the plan, which will formally start in September 1976, primary education will be free and universal, and starting in 1979 it will be compulsory.

Because only one primary-school-age child in three was attending classes in 1973/74, the Federal Government has accelerated several programs to accommodate and educate the vast influx of students expected. Foremost among these programs will be the construction of 50,995 new classrooms during the Third Plan period, 1975-80. It is expected that most of the construction, involving relatively small and simple units, will be carried out by local contractors. However, foreign construction companies registered in Nigeria may have the opportunity to bid on specific contracts (see Chapter 13, Building Construction). Standard modular prefab units, common to the United States, may offer a solution to this urgent problem.

UPE must also dramatically increase the number of primary school teachers and the volume and quality of educational materials and equipment. The Federal Commissioner for Education has been quoted as saying that 500,000 primary school teachers and 47,000 teacher trainers will be required to make UPE operative. To fulfill this demand, many of these personnel will have to come from abroad.

The Nigerian Government is interested in qualified and motivated American teachers and administrators and on occasion has sent recruiters here. A few teachers and administrators have already come from the United States (primarily at the secondary school and teacher training college levels). However, except in special circumstances

where equivalent salaries are paid, the lower salaries offered in Nigeria will likely deter all but the most interested and venturesome. Inquiries concerning teaching opportunities at all levels can be addressed to the Permanent Secretary in care of the Federal and State Ministries of Education at the various capital cities of Nigeria.

In addition to new schools and more teachers, UPE is also to require an expanded and improved primary curriculum. Most of this ongoing work is being done by private publishing companies within Nigeria. However, in certain areas of the country government-owned or financed organizations, such as the Northern Nigeria Publishing Company (Kaduna) and the Institute of Education at Ahmadu Bello University (Zaria), are performing part of the task. Some textbooks and teaching aids are produced overseas by foreign publishing houses for their Nigerian subsidiaries or partners.

Secondary Education

Responsibility for secondary education is shared between the Federal and State Governments. Each local government operates its own schools while the Federal and State Governments make grants-in-aid: the Federal Government to the States and the States to the local education authorities and to those mission-controlled schools not yet assimilated by State systems. The secondary school system is divided between secondary academic (grammar) schools and secondary technical (vocational) schools.

Under the *Third National Development Plan* there is to be a marked expansion of Nigeria's secondary school system. A total of 48,232 new classrooms are to be constructed, with total enrollment to increase by more than 1 million to 1.56 million students. As in the primary school sector, it is expected most construction will be performed by local contractors, though all properly registered domestic and foreign construction companies will have the opportunity to bid on tenders or be selected from a list of qualified firms.

The secondary school curriculum, tied as it is to the British O and A level system, will see fewer changes and less quantitative expansion than the primary school curriculum. Within the traditional subject matter, however, there will be considerable room for experimentation, particularly regarding instruction in the physical sciences, mathematics and commercial and vocational subjects. There is a strong interest throughout Nigeria in the new teaching techniques and materials devised in the United States to facilitate the learning of these subjects. And it is in these fields that some American texts are beginning to be used in Nigeria. More are in demand if the price is right and scheduled delivery can be assured.

There appears to be a growing market for audio-visual as well as for science laboratory equipment. As in most other parts of the educational sector, U.K. suppliers tend to be the most successful. However, Philips appears to be dominant in the presently limited market for language laboratory equipment.

There is also a keen interest in obtaining American high school teachers, particularly those with science and math backgrounds and especially those who are qualified to train teachers of science and math. Some State Governments have expressed an interest in American teachers of secondary level home economics and agriculture.

Post-Secondary Technical and Vocational Education

To supply the skilled manpower needed to develop and maintain a technologically advanced economy, Nigeria has placed renewed stress on post-secondary technical and vocational training. Polytechnics or colleges of technology are to be established in each of the 12 State capitals by 1980. A total of 4,079 new classrooms are to be constructed, with enrollment to increase approximately fivefold from 1974/75 levels to approach 118,000 students. The cumulative cost of this expansion program has been pegged at \$310 million.

Many of these construction projects will be relatively large-scale and will require more sophisticated designs than those for the primary and secondary school program. Less reliance is expected to be placed on local contractors and more on the larger, Lagos-based firms. As of July 1975, few contracts had been awarded, with most bids to be solicited in the 1976-77 period.

Laboratory and classroom material needs include hand tools, simple fabricating machinery, and laboratory apparatus, valued at over \$30 million. Post-secondary schools will make their own purchasing decisions for laboratory and classroom needs, subject in isolated instances to State approval. Awards will be determined either on a tender or preselected basis, depending upon local custom or requirements. Most of these items are purchased abroad, usually through local import houses. Such agencies are essential for practical coverage of this widely diffused market segment.

Teacher Training Colleges

Similar conditions regarding construction and the purchasing of supplies and equipment will prevail in connection with Nigeria's development of its teacher training colleges. Some 62 additional teacher training colleges are expected to be opened during the Third Plan period and all

existing facilities expanded. The importance of this program lies in the need for a minimum of 230,000 additional teachers for primary schools. Total expenditures are forecast at \$567 million, with the Federal Government to provide \$506 million.

University Education

There were six universities in Nigeria in 1975: the University of Ibadan—the first to be established in the Western State capital; the University of Ife, also in the Western State; the University of Lagos, in the Federal capital; Ahmadu Bello University, Zaria, North-Central State; the University of Nigeria, Nsukka, East-Central State; and the University of Benin in the Mid-Western State capital. Four new universities are to be established during the current Plan period. These are to be located in Calabar, the South-Eastern State capital; Jos, capital of Benue Plateau State; Maiduguri, the North-Eastern State capital, and Sokoto, capital of North-Western State. In addition, two new university campuses will be established in Port Harcourt, capital of Rivers State, and Ilorin, the Kwara State capital. Eventually these two campuses, along with Abdulahi Bayero College in Kano, would be developed into full-fledged universities, giving Nigeria a total of 13—one in each State except for Western State, which would have two.

A total of \$414.3 million has been earmarked for the expansion of the existing universities and for the creation of the new institutions. The Federal Government will provide 83% of the monies—\$44 million.

Construction costs for the creation of the four new universities have been tentatively budgeted at \$56 million. In addition, existing institutions, particularly the universities of Benin and Ife, will be undertaking major capital investments in plant and equipment. Benin will be receiving \$27 million from the Federal Government and \$18 million from the Mid-Western State Government for the expansion of its still new campus.

Buildings to be constructed will range from housing facilities for students and staff, cafeterias and dining halls, student centers, and sports facilities, to classrooms, laboratories, libraries, and administration blocks. The construction of residence facilities for 18,625 students will alone cost an estimated \$61 million. Housing for senior, junior and intermediate staff is expected to cost \$69 million during the Third Plan period.

In addition, new complexes and faculties will be created at certain universities and existing facilities will be expanded at others. In the fields of health and medicine, the Universities of Ibadan, Ife, Nsukka and Ahmadu Bello are to receive appropriations totaling \$22 million for the

construction of new facilities.

Inquiries concerning further details on individual university expansion plans, the schedule of bid solicitations, and the awarding of construction and equipment contracts generally should be addressed to the respective Bursars. At Ahmadu Bello University the official to contact is the Development Secretary (see Appendix 7.2). Questions about employment opportunities should generally be addressed to the chairman of the particular academic department. Where specific faculties, institutes or libraries are involved, inquiries can be made directly to the respective Dean, Director, or Head Librarian.

Libraries

Another significant market segment will be the expansion and improvement of the country's school library system, for which a total of \$7 million has been allotted in the Third Plan. Even more significant, however, will be Nigeria's \$100-million general library expansion program.

New Trends in Nigerian Education

In addition to the plans discussed earlier, Nigeria will also be initiating a program of adult educational services. Several of these initiatives will require the importation of equipment and personnel.

Under the Third Plan, programs will be implemented to alleviate the problems of adult illiteracy and education and training of the handicapped. The Federal Government and most States will embark upon programs in both fields. A total of \$12 million and \$6 million, respectively, has been allocated for programs in adult literacy and the rehabilitation of the physically and mentally handicapped.

In adult education, emphasis is being placed on the organization of adult education and continuing education centers. These institutions frequently will operate both correspondence and on-site adult education courses. Kwara State has one of the more ambitious programs and will spend \$3 million to establish a Vernacular and Visual Aid Complex, including a Vernacular Publication Center, in addition to creating small centers throughout the State to teach basic reading and writing skills. According to the Third Plan, North-Eastern State has earmarked \$2.9 million for the purchase of books, stationery and equipment to promote adult education, particularly literacy skills.

There has been considerable discussion in the Nigerian media as to whether enough is being done regarding schools for the handicapped, particularly victims of the Nigerian civil war

(1967-70). It is possible that new programs will significantly increase the \$6 million sum mentioned in the Third Plan. Current planning envisages the creation of several new schools as well as the expansion of existing facilities. The bulk of the expansion will occur within Lagos State.

In the field of special education, Nigeria has looked to U.K. establishments, such as the Royal Institute for the Blind, for training personnel, equipment and supplies. Though there is a growing awareness of the advances and innovations the United States has made in this field, little contact has been made as yet with American teaching institutions and equipment suppliers. The frequency of such contacts can be expected to increase as Nigeria continues to turn its attention toward the exceptional educational needs of the country.

Both within and outside the education profession there has been much cautious discussion about the potential uses of radio and television and the establishment of audio-visual equipment centers and science equipment centers to promote the aims of education within the country.

Most of the proposals put forth are in a tentative planning stage, but a few are included in the Third Plan. Beginning in 1977 Benue-Plateau State will spend \$1.6 million for the purchase of closed-circuit television equipment for its schools. The Federal Government will spend \$3.3 million to establish a center for training educational broadcasters and to prepare teaching materials. It has also earmarked \$1.6 million to set up four new science equipment centers to be used primarily in training science teachers and instructors. Such centers are expected to provide major sales opportunities for foreign equipment manufacturers.

World Bank Education Loan

Good sales opportunities for American suppliers of science laboratory and mechanical workshop equipment will exist in Nigeria in connection with a loan of \$54 million made in 1974 by the International Bank for Reconstruction and Development (World Bank). This third loan to Nigeria in the field of education is the World Bank's contribution to a project covering the construction and equipping of 21 secondary comprehensive schools in Nigeria's six northern States.

Officials informed the Nigeria Survey Team that they expect most project contracts will be awarded according to the Bank's international tender policies. A prequalification process to sort out interested building contractors is expected to occur during the last quarter of 1975 and the first quarter of 1976. Actual contracts are to be

awarded sometime in the subsequent two quarters of 1976. The same timetable most likely will be followed for the procurement of school furniture, and science laboratory and mechanical workshop equipment. Overall requirements within each category are expected to be met on a piecemeal basis, with several contract awards being involved.

Due to the World Bank's policy of giving domestic contractors a 7.5% preference in bid evaluations of civil works, it is not considered likely that foreign firms will win construction contracts. According to project officials, domestic suppliers are also likely to provide all furniture requirements.

Better opportunities are foreseen for American companies in connection with the \$25 million earmarked for the purchase of science laboratory and mechanical workshop equipment. Nigerian companies are not expected to be able to meet these needs.

Specific equipment requirements will be contained in the tender documents to be released. Interested American suppliers are urged to obtain additional project information by contacting the World Bank in Washington or writing the World Bank Mission, 2813 McCarthy Street, Lagos, Nigeria.

Market Profiles

The nature of Nigerian educational clientele is reflected in the following descriptions of a leading State education ministry, textbook publisher, and school supply firm.

Western State Ministry of Education

Western State (capital, Ibadan) has one of the most extensive and progressive educational systems in the country. Since 1956 it has provided free primary education, with 980,000 students enrolled in 1973. Western State easily led all of the 12 States in the number of secondary school students, with 166,000, nearly double that of its nearest rival, East-Central State (84,457), and accounted for well over one-third of the total number attending classes throughout the country. Two of Nigeria's most prestigious schools of higher education, the Universities of Ibadan and Ife, are located within its borders.

Western State, through its Ministry of Education, plans to spend a total of \$135 million on the development of its educational programs during the Third Plan period. Particular emphasis is to be placed on the construction of new classrooms: 11,240 for secondary schools, (250 new schools), 178 for secondary technical and vocational schools, and 267 for teacher training

colleges. Any Nigerian-registered construction company will be able to bid on tenders, with few contracts to be awarded before 1976 (For information on registration of U.S. firms, see Chapter 13, "Building Construction." Tenders on construction will be issued by the Western State Ministry of Works, and by the schools themselves in certain instances where expansion of existing facilities is planned.

Educational emphasis is to be placed on science, math, commercial subjects and home economics, areas in which the Ministry feels American companies might be able to provide acceptable teaching aids, materials, and textbooks. Officials also expressed an interest to the Commerce Survey Team in entertaining American bids on forthcoming tenders for audio-visual, science and language laboratory equipment. A science equipment center is to be established for the maintenance and repair of science materials and equipment, the production of prototype school science equipment, the provision of advisory services on laboratory equipment, and laboratory management. Inquiries concerning educational programming in Western State can be addressed to the Permanent Secretary, Ministry of Education, Western State, Ibadan.

Pilgrim Books Ltd.

Among the most prominent importers and publishers and suppliers of textbooks in Nigeria is the Lagos-based Pilgrim Books Limited. Associated with the Xerox Education Group, an affiliate of Xerox Corporation (through Rank-Xerox of the United Kingdom), Pilgrim ranks among the largest publishing firms in Nigeria, with annual sales of \$2 million.

Like the other 25 or so member firms of the Nigerian Textbook Manufacturers Association, Pilgrim is concentrating its efforts toward meeting the textbook demands of the Universal Primary Education (UPE) plan. Pilgrim believes that Nigerian publishers will be able to meet most new requirements UPE is imposing. It and other Nigerian companies interviewed by the Survey Team foresaw limited sales opportunities in primary textbooks for American suppliers. However, in specialized areas of secondary education and beyond, such as science, math, medicine, engineering and commercial subjects, a sizable market may be developed for U.S. textbooks. All those interviewed indicated an interest in the potential representation of American firms. Prominent Nigerian companies (besides Pilgrim Books) to indicate an interest were the Ibadan-based Onibonoje Press, the Aromolaran Press, and Hart Mossman and Company Ltd., all of Lagos.

C.S.S. Bookshops

Nigerian bookstores are a principal outlet for a wide range of educational materials, teaching aids, and general school supplies. The larger firms offer audio-visual devices, (projectors, screens, tape-recorders, etc.). They also import for sales to the educational system more sophisticated items such as language and science laboratory equipment.

Nigerian bookstores as a whole do represent many foreign companies in the educational market and could serve the needs of some American firms.

The largest book retailer in Nigeria, with 36 retail outlets across the country, is the Lagos-headquartered C.S.S. Bookshops. C.S.S. sales in 1974 approached \$10 million. The firm foresees excellent growth opportunities occurring as a result of the on-going expansion of the education sector. C.S.S. is interested in developing additional business representations for foreign suppliers.

According to Mr. Femi Jeboda, C.S.S.'s Marketing Manager, too few American companies are represented in Nigeria by resident employee salesmen. Such representation could develop a market for American products. He realizes the considerable cost involved but feels the expense could be reduced if two or three companies shared the overhead. He personally had been visited by representatives of over 30 American companies but none ever seemed to follow up. On the other hand, British firms are well represented.

Mr. Jeboda feels that even more business could be done by American firms who enter into joint venture operations with Nigerian partners. He felt the teaching aids market (maps, charts, globes, etc.) could be a good one for Americans, since no single foreign firm dominates it at present. He also cited math sets as presenting an excellent opportunity for American suppliers.

Mr. Jeboda believes that American suppliers would find difficulty in competing in the textbook market, but that math and science textbooks from the United States could sell in Nigeria. Mr. Jeboda believes that the American program approach in subject instruction is too expensive for Nigeria.

Generally, one all-purpose textbook for a subject is what Nigerian educators want. Other impediments to American book sales are the problem of unfamiliar American spellings (though this presumably would not be critical at the university level) and the need for meeting promised delivery schedules.

MARKETING APPROACHES

Purchases within the educational sector are usually done on a tender basis. Such tenders normally provide for no more than 2 to 4 weeks for bid submission after the date of issuance. It is therefore desirable for American companies to have a representative on the scene in Nigeria who can take necessary action on sales opportunities as they evolve and follow through on securing and executing orders. There is no substitute for full-time representation if an effective sales campaign is to be launched in Nigeria. If the product sold needs to be serviced, a service capability within Nigeria is also a necessity. Orders for school supplies usually specify a 6- to 12-week delivery from local inventory. It is important that delivery dates be maintained if follow-on business is to be obtained.

Establishing a direct sales subsidiary within Nigeria has proven to be the most successful means for promoting sales to the educational sector. A joint-venture operation with Nigerian participation appears to be most effective. The limited market size for many products, however, makes the services of a reliable agent or distributor the better choice. Over 100 firms currently exist throughout Nigeria which serve the educational market. The great majority do considerably less than \$1 million in business annually. Most attempt to offer a wide range of products, from pencils to textbooks to sports equipment, and most are eager to represent new clients, particularly those from the United States. It is recommended that interested American companies make use of the Department of Commerce's *World Trade Data Reports (WTDR)* service in the selection of Nigerian representation (WTDRs are discussed later in this Survey under "Marketing Assistance and Information").

Appendix 7.1.—Enrollment targets for Nigerian schools

		1973		1980	
State	No. of Schools	Enrollment	No. of new schools	No. of new classrooms	Enrollment
<i>Primary schools</i>					
Benue-Plateau	990	217, 017	—	12, 565	780, 000
Kano	552	120, 276	—	21, 840	1, 017, 700
Kwara	611	151, 462	—	2, 535	498, 200
North-Central	646	160, 000	—	14, 835	776, 500
North-Eastern	772	171, 753	—	29, 365	1, 380, 000
North-Western	874	153, 280	—	21, 365	1, 036, 200
East-Central	2, 135	1, 268, 456	—	8, 445	1, 680, 900
South-Eastern	1, 495	521, 089	—	7, 045	847, 300
Rivers	556	243, 081	—	2, 155	377, 500
Lagos	474	286, 247	—	1, 330	375, 700
Mid-Western	1, 556	474, 157	—	2, 995	673, 200
Western	3, 867	980, 000	—	21, 520	2, 096, 700
Total	14, 525	4, 746, 808	—	150, 995	11, 521, 500
<i>Secondary schools</i>					
Benue-Plateau	70	12, 920	20	1, 850	32, 920
Kano	18	5, 768	5	200	14, 150
Kwara	66	21, 163	54	5, 129	128, 100
North-Central	27	10, 572	16	2, 260	84, 932
North-Eastern	43	10, 240	114	1, 674	109, 632
North-Western	31	8, 565	25	546	24, 900
East-Central	199	84, 457	151	12, 636	421, 200
South-Eastern	73	22, 243	32	9, 451	56, 600
Rivers	246	18, 469	79	1, 591	63, 640
Lagos	82	35, 655	6	200	108, 360
Mid-Western	126	52, 852	25	934	158, 846
Western	518	166, 000	250	11, 240	270, 000
Federal	—	—	20	470	18, 800
Total	1, 499	448, 904	797	48, 232	1, 555, 180
<i>Technical and vocational schools</i>					
Benue-Plateau	6	748	8	186	8, 220
Kano	3	1, 145	7	104	3, 626
Kwara	3	605	9	200	12, 000
North-Central	4	1, 276	1	226	12, 250
North-Eastern	6	911	5	113	5, 414
North-Western	3	528	—	16	1, 056
East-Central	11	4, 738	28	2, 099	41, 982
South-Eastern	10	1, 900	11	90	3, 800
Rivers	9	1, 284	12	547	13, 119
Lagos	4	1, 378	2	20	2, 178
Mid-Western	12	5, 954	6	264	10, 500
Western	13	2, 450	2	178	3, 541
Total	84	22, 588	94	4, 079	117, 686
<i>Teacher training colleges</i>					
Benue-Plateau	9	3, 004	—	538	18, 840
Kano	8	4, 461	—	974	34, 115
Kwara	11	537	—	238	8, 340
North-Central	14	5, 118	—	617	21, 600
North-Eastern	17	6, 084	—	1, 277	44, 720
North-Western	23	8, 640	—	901	31, 560
East-Central	22	5, 517	—	448	15, 700
South-Eastern	9	1, 626	—	402	14, 080
Rivers	7	1, 726	—	128	4, 505
Lagos	4	591	—	107	3, 730
Western	23	5, 538	—	802	28, 095
Mid-Western	10	4, 109	—	267	9, 375
Total	157	46, 951	—	6, 699	234, 680

Appendix 7.1. (continued)

Enrollment targets in universities

<i>Universities</i>	1973		1975-80	
	<i>No. of institutions</i>	<i>Enrollment</i>	<i>No. of new institutions</i>	<i>Enrollment 1979-80</i>
Ahmadu Bello University	1	5, 828	—	9, 350
University of Lagos	1	3, 400	—	7, 530
University of Ibadan	1	4, 618	—	8, 340
University of Nigeria	1	4, 677	—	8, 340
University of Ife	1	4, 005	—	7, 405
University of Benin	1	645	—	3, 490
Four new Universities	—	—	4	8, 795
Total	6	23, 173	4	53, 000

Appendix 7.2.—Procurement contacts in Nigerian education

Federal and State Ministries of Education

(Address: Permanent Secretary, Ministry of Education, followed by State and city as shown below.)

Federal Ministry of Education
P&T Building
Lagos, Nigeria

Benue-Plateau State
Jos, Nigeria

East-Central State
Enugu, Nigeria

Kano State
Kano, Nigeria

Kwara State
Ilorin, Nigeria

Lagos State
Lagos, Nigeria

Mid-West State
Benin, Nigeria

North-Central State
Kaduna, Nigeria

North-Eastern State
Maiduguri, Nigeria

North-Western State
Sokoto, Nigeria

Rivers State
Port Harcourt, Nigeria

South-Eastern State
Calabar, Nigeria

Western State
Ibadan, Nigeria

Universities

(Address: The Bursar, except for Ahmadu Bello University the contact for which is The Development Secretary.)

Ahmadu Bello University
Zaria, North-Central State

University of Benin
Benin, Mid-West State

University of Ibadan
Ibadan, Western State

University of Ife
Ile-Ife, Western State

University of Lagos
Lagos, Lagos State

University of Nigeria
Nsukka, East-Central State

Chapter 8

HEALTH CARE

HIGHLIGHTS

Expansion of Nigeria's health care delivery system has been made one of the top priorities of the *Third Development Plan* (1975-80). Health manpower, facilities, and services all fall short of minimal standards set by the World Health Organization for that part of the world. Nigeria's Ministry of Health plans an expenditure of \$1.2 billion over the next 5 years to expand health care resources. With foreign exchange reserves of \$7 billion, and still rising, there is little concern as to the country's ability to afford such a program.

Virtually all types of equipment used by hospitals and other health care establishments are imported; the nearly \$15 million worth of equipment used by health care institutions that was imported in 1974 (see table 8.1), represented 63% more than in 1972. By 1980 trade sources expect annual imports will approach \$40 million. However, everything depends on how many of the projects in the \$1.2-billion health plan are implemented.

Though the United Kingdom has been the leading supplier of the categories shown in table 8.1, several marketing factors combine to make the current picture particularly favorable for U.S. manufacturers to garner a much greater share of the business.

Nigeria's medical education system, well regarded by foreign authorities, is being expanded. Marketing executives will watch this development since the installation of advanced medical equipment in schools and universities is important for follow-on sales to health care establishments.

EQUIPMENT REQUIREMENTS

All of the equipment used by Nigeria's health care establishments is imported, and no change in this pattern is expected in the foreseeable future. It is estimated that \$14.7 million worth of equipment identifiable statistically as used in health care was imported in 1974. This reflected an average annual growth of 28% since 1972.

The first and last categories shown in table 8.1 are considered by trade analysts to be strictly for health care use; X-ray apparatus is largely used in medical and dental applications; and electrical measuring and

controlling instruments and apparatus include some instruments used in dental and medical laboratories. In addition to these, of course, are numerous other categories of imports, of which a small portion would be destined for health care establishments.

and electrical measuring and controlling instruments and apparatus include some instruments used in dental and medical laboratories. In addition to these, of course, are numerous other categories of imports, of which a small portion would be destined for health care establishments.

Of the four selected import classifications, X-ray apparatus has shown the fastest growth since 1972, averaging 46% annually, followed by electrical measuring and controlling instruments and apparatus with 21%, medical instruments at 19%, and electrical medical apparatus with 13%.

Imports of the same four categories are projected to reach a combined \$38.7 million in 1980 for an average annual growth rate of 14.9%. This projection is based on how medical equipment marketing specialists in both Nigeria and the United States view the future development of the country's health care facilities and the market for medical equipment. Lacking adequate detailed data on which to base forecasts, these officials base their estimates on experience in the marketplace and knowledge of critical factors. Of the \$1.2 billion in capital expenditures projected by the *Third National Development Plan* to be spent in the health sector through 1980, 40% (\$484 million) is slated for major hospital projects. Of the \$484 million, from 25% to 40% may go for capital goods.

Nigerian importing distributors anticipate good sales potential for the following types of equipment and supplies in the health sector:

Cardiological - Thoracic Equipment

- Cardiac monitoring equipment
- Intensive care systems
- Electrocardiographs

Respiratory - Pulmonary Function-Thoracic Equipment

- Resuscitators and respirators
- Heart-lung machines
- Oxygen tents

Neurological Equipment

- Electroencephalographs

Pediatric Equipment

- Infant Incubators

Operating Room Equipment & Supplies

- Central blood and fluid circulation systems
- Sutures and catgut
- Anesthesia equipment

Table 8.1.—Nigerian imports of equipment used by health care establishments, 1972–80
(in thousands of U.S. dollars)¹

Countries of Origin	1974			% share
	1972	1973	Value	
Electrical medical apparatus	855.8	1,003.5	2,372.0	100
United Kingdom	313.4	450.5	948.8	40
West Germany	228.0	280.3	711.6	30
Netherlands	197.6	13.2	n.a.	—
United States	80.0	61.3	355.8	15
Japan	7.9	161.4	n.a.	—
All others	28.9	36.8	n.a.	—
X-ray apparatus	938.8	1,980.8	2,012.0	100
United Kingdom	546.3	998.2	1,408.4	70
West Germany	254.5	55.6	402.4	20
United States	54.1	45.6	100.6	5
Netherlands	46.2	1.1	n.a.	—
Japan	24.0	25.5	n.a.	—
All others	13.7	64.8	n.a.	—
Electrical measuring and controlling instruments and apparatus	1,680.8	1,507.4	2,458.6	100
United Kingdom	1,078.0	837.2	1,383.4	56
United States	264.1	234.5	272.6	11
France	93.6	54.4	73.3	3
West Germany	69.5	172.1	199.4	8
Netherlands	66.9	41.8	135.0	5
All others	332.5	167.4	392.3	17
Medical instruments NES	5,564.7	4,776.3	7,900.0	100
United Kingdom	1,936.2	2,582.9	—	28
West Germany	1,333.3	668.6	—	40
Japan	672.5	223.3	n.a.	—
Netherlands	532.6	292.1	n.a.	—
United States	383.3	273.8	—	5
All others	706.8	483.9	n.a.	—

1. Converted from Naira at: 1972, ₦ 1 = U.S. \$1.52; 1973, ₦ 1 = \$1.52; 1974 ₦ 1 = \$1.62. 1974 and 1980 were estimated in dollars.

Source: 1972–73: *Nigeria Trade Summary*, Federal Office of Statistics, Lagos 1974: trade analysts.

Surgical instruments	Business machines
Surgical needles and blades	Ambulances
Microtomes	Air conditioning and refrigeration equipment
Suction units	Building products
Operating room furniture and lighting fixtures	<i>Laboratory Equipment & Supplies</i>
Cauterizing machines	Laboratory and hygienic glassware
<i>General Hospital Equipment & Supplies</i>	Spectrophotometers and photometers
X-ray machines, image intensifiers, processors, and film	Laboratory ovens
Endoscope instruments	Laboratory incubators
Surgical gloves	Laboratory refrigerators and freezers
Water distilling and purification equipment	Laboratory reagents, chemicals and test sets
Adhesive plasters	Blood analysis machines
Bandages and other dressings	Microscopes
Autoclaves and sterilizers	Laboratory water baths
Shortwave diathermy equipment	Centrifuges
Stethoscopes	pH meters
Glass syringes and needles	Calorimeters
Hand-operated blood pressure machines	Automatic tissue dipping machines
Thermometers	Automatic Laboratory measuring instruments for liquids
Disposable syringes and blood sets	<i>Others</i>
Central piping systems	Artificial teeth
Catheters	Hearing aids
Hospital furniture	Dental cleansing, drilling and hand instruments
Hypo-hyperthermic units	Dental cements and fillings
Standby generators	Ophthalmic equipment
Telephone PABXs and paging systems	Blood bank equipment
Fire safety and property security equipment	Morgue refrigerators
Food preparation and serving equipment	Orthopedic apparatus, artificial limbs, and related equipment
Laundry equipment	

Nigeria's ability to pay is not questioned because of its petroleum revenue. The recognized shortage of health facility administrators, planners, and architects suggests to observers real opportunities for American professionals and organizations specializing in these areas. However, American businessmen familiar with the requirements emphasize know-how is what's of interest not the capability to make the decisions. Decisions will continue to be exercised by Nigerian authorities.

Observers of the Nigerian health sector believe with the expansion of the country's health care facilities that is certain to take place, U.S. suppliers of medical equipment and materials have an opportunity to convene health care establishments, facility planners, architects, and contractors—as may be appropriate—of the need for the U.S. suppliers' products and services. See *Marketing Approaches* for more on sales and marketing strategy.

One of Nigeria's leading importing distributors of medical equipment indicated advanced technology, such as nuclear medical techniques providing additional or more accurate bases for diagnosis, is quite salable in Nigeria. Automation that economizes on skilled personnel and reduces susceptibility to human error also is in demand, provided the equipment is readily serviceable in Nigeria. Automatic X-ray film processing equipment, he cited for example, has been installed in several hospitals.

Sophisticated equipment featuring high speed or large capacity may be a worthwhile investment for the large Nigerian medical facilities having heavy patient loads. These establishments would have qualified or trainable medical staff available to interpret the diagnostic outputs and apply the advanced treatments made possible by modern biomedical technology.

One American designer of health care facilities observed that the buildings built prior to independence incorporate British designs tropical architecture which are appropriate climatically though their extended layouts were wasteful of the time of scarce medical personnel. He contended American hospital designs used in similar climates elsewhere would result in greater efficiency in utilization of space and consequently would save time.

The WHO Regional Training Center for Health Personnel in Lagos—recycling facility for paramedical personnel from English-speaking African countries—is reported to require teaching materials, visual aids, and laboratory equipment.

COMPETITION

The United Kingdom is in first place among suppliers competing for Nigerian medical equip-

Table 8.2.—Nigerian health establishments, 1962, 1972, and 1980 targeted

(Numbers of beds are shown in parentheses)

	1962	1972	1980
Bed per population	1/2, 455	1/1, 592	1/1, 000
Teaching hospitals	2 (825)	6 (2, 789)	18 (9, 000)
General hospitals	NA	339 (25, 307)	450 (52, 600)
Health centers	NA	239 (1, 310)	1, 650 (23, 320)
Health clinics	NA	1, 605 (—)	7, 230 (—)
Total	2, 793 (21, 896)	4, 958 (42, 698)	10, 000 (85, 000)

Source: *Third National Development Plan*

ment requirements—followed by West Germany, the United States, the Netherlands, France, and Japan. The leading position of such British manufacturers as General Electric Company (GEC, not affiliated with the U.S. General Electric Co.) is partly due to well-founded, long-term relationships established under the Imperial preference system when Nigeria was a British colony. Another factor contributing to the leading position of British suppliers is the familiarity with British equipment which Nigerian physicians and medical technicians acquire while studying in British schools.

When asked about GEC's competitive edge in Nigeria, an American medical X-ray equipment marketing executive commented that they do not have the "leading edge in diagnostic X-ray technology." GEC introduced at the European Congress of Radiology, (Edinburgh, Scotland, in June 1975) equipment comparable with that which CGR (France), Siemens (West Germany), Philips (the Netherlands), GE and Picker (United States) have made available for some time. First factory deliveries of the new GEC equipment is reportedly expected in 1977.

Hospitalia International, the West German organization jointly owned by Siemens and Philips, is represented by Union Trading Company (Nigeria) Limited (UTC). Hospitalia is noted in many countries for securing turn-key contracts for the construction of new hospitals, but has been mainly active in Nigeria in equipping existing hospitals.

For example, Hospitalia equipped the University of Benin Teaching Hospital and rural (cottage) hospitals. In 1964, Hospitalia equipped ten rural hospitals in the north and is presently supplying equipment and after-sales service for six cottage hospitals in Benue-Plateau State and for 20 cottage hospitals in Mid-Western State.

Historical sourcing patterns may not be too relevant, however, to the new market conditions arising from greatly increased budgets for health

care embodied in the *Third National Development Plan*. These new facilities undoubtedly will involve some equipment new to those making purchasing decisions and thus could provide opportunities for suppliers desiring to begin or to increase their penetration of the market. Furthermore, the surging purchasing power of end users in the health sector could well make it worthwhile for American firms before inactive in Nigeria to initiate strong market development programs.

SECTOR ANALYSIS

In contrast to developed countries such as the United States, the people of Nigeria suffer most from communicable diseases which could likely be prevented through appropriate water and sewage systems, immunization, and nutrition programs.

The segment of the population most seriously affected by preventable diseases are children under 4 years of age. About 30% of all deaths in Lagos State occur in children under 1 year of age, and an additional 20% of all deaths occur in children between 1 and 4. Because of the much greater lack of health services and treatment centers in rural areas, it can be assumed that these percentages are at least as high, if not higher, among less urban populations. The high 1-4 mortality is judged to be due to uncontrolled infections, parasitic diseases and malnutrition during this vulnerable period.

Most deaths are attributable to the prevalence of communicable diseases. These diseases become endemic as a result of lack of potable water, adequate sewage systems, and immunization programs. In spite of these problems, several diseases have declined in incidence as a result of concentrated program efforts.

Perhaps the greatest success in control of communicable disease has been the eradication of

smallpox. In 1967, the World Health Organization (WHO), U.S. Agency for International Development (USAID), and 20 West African countries launched a 5-year smallpox eradication program. Statistics from the Western State show that smallpox has declined from 283 cases resulting in 38 deaths in 1967 to 39 cases resulting in three deaths in 1969. By 1970, total country statistics reported only 79 cases, one of which was fatal.

The following tables rank the most prevalent illnesses and causes of mortality in 1970. The data pertain to all age groups.

Most Prevalent Illnesses

	Cases
Malaria	628,534
Dysentery	188,953
Gonorrhea	86,722
Pneumonia	54,557
Measles	53,529
Tuberculosis	33,279

Leading Causes of Mortality

	Deaths
Pneumonia	1,844
Malaria	1,109
Cerebrospinal Meningitis	1,077
Tetanus	639
Infectious Hepatitis	587
Tuberculosis	577

Malaria.—The effects of malaria evidence themselves not only in a large number of deaths but also in low productivity, apathy, and high rates of absenteeism of the working population. They are particularly serious in a predominantly agricultural country which depends heavily on strenuous manual labor and long working hours. Control efforts through massive residual spraying and case finding campaigns have met with limited success. In addition, proposed expansion of agricultural irrigation networks and increased use

Table 8.3.—*New basic health service facilities planned by state governments, 1975-80*

Government	Comprehensive health centers	Health centers	Health clinics	Mobile clinics	Beds to be added	Capital expenditure (\$ millions)
Benue-Plateau	21	84	420	105	1,638	21.0
East-Central	32	128	640	160	2,496	28.5
Kano	32	128	640	160	2,496	30.5
Kwara	22	88	440	110	1,716	19.6
Lagos	10	40	200	50	780	12.5
Mid-Western	13	52	260	65	1,014	17.1
North-Central	27	108	540	135	2,106	24.4
North-Eastern	40	160	800	200	3,120	35.6
North-Western	25	100	500	125	1,950	23.2
Rivers	9	36	180	45	702	10.4
South-Eastern	14	56	280	70	1,092	12.5
Western	40	150	725	185	2,850	37.7
Total	285	1,130	5,625	1,410	21,960	273.0

Source: *Third National Development Plan*, Vol. I, p. 271-2.

of pesticides may seriously hamper malaria vector control efforts already in progress. Irrigation canals will provide even more breeding places for mosquitoes, while pesticide use may increase mosquito resistance to DDT and other insecticides.

Pneumonia.—Often pneumonia results from complications of other diseases, and it is largely a matter of individual physician preference as to which is recorded as the primary cause of death. Consequently, deaths categorized as being caused by pneumonia may have actually resulted from another, less serious disease which was left untreated for an undesirable length of time. Preventive measures levelled against other infectious and parasitic diseases and malnutrition could have a dramatic effect in reducing illness and mortality from this disease.

Cerebrospinal Meningitis.—An American Public Health Association (APHA) report on *Control of Communicable Diseases in Man* states that cerebrospinal meningitis has been a leading cause of death for many years in Northern Nigeria and, without modern chemotherapy, the fatality rate could be as high as 40 to 50%. (Access to modern chemotherapy can reduce fatality to 5%.) The fatality rate from recorded data is only 10%. It seems likely that in an area with a scarcity of hospital facilities and professional resources, coupled with a popular distrust of modern medical technology, actual case fatality rates would be at least as high as those projected by the APHA report. The most reasonable explanation for the discrepancy between reported figures and projected figures is that only those cases which manage to get into the hospital system are counted. Once in a hospital, patients with the disease can be successfully treated, dramatically reducing mortality. Preventive measures involve control of carriers, relief from overcrowded living conditions, and extensive health education. Related investigations are currently underway to determine whether architectural design of low-cost housing could prevent drastic temperature changes, thus altering the microclimate predisposed to such high mortality. These measures involve long-term implementation plans.

Tetanus.—There is no available information on the cause. There is a possibility that the problem most often results from poor obstetrical practices and septic conditions at birth. In most developing countries, tetanus neonatorum is a prime killer of newborn infants. Prevention of the disease can be effected through a combination of appropriate vaccination of pregnant women and expanded training for midwives. The alternative of promoting institutional deliveries is ultimately more expensive and reaches a much more limited portion of the target population. Although statistics are unavailable for the country as a whole, the Western State reported

Table 8.4.—Major health care construction projects planned and new planned hospital bed capacity, 1975–80

	\$million ¹	Additional hospital beds
Federal	343	n.a.
Teaching hospitals	324	8, 000
Psychiatric hospitals,		
Aro Psychiatric		
Hospital expansion	10	n.a.
Federal Government		
Hospital, Lagos	10	250
Benue-Plateau	19	1, 560
2 new general hospitals	4	120
East-Central	59	5, 840
18 new 200-bed Division		
General Hospitals	22	3, 600
3 new psychiatric		
hospitals	11	360
Upgrading 5 general		
hospitals	16	—
Kano	13	600
Expansion of two		
hospitals	7	80
Kwara	18	600
Lagos	67	2, 900
Modernization of Lagos		
General Hospital	5	—
Ikeja General Hospital		
expansion	8	—
Orthopaedic Hospital	10	500
Psychiatric Center	8	700
Mid-Western	34	2, 000
Upgrading of 3 hospitals	27	—
Modernization/expansion		
of Benin Specialist		
Hospital and others	4	238
North-Central	8	530
North-Eastern	11	1, 820
North-Western	18	1, 700
Rivers	36	1, 440
South-Eastern	19	1, 000
4 Group Reference Hospitals	16	1, 000
Western	12	2, 500
Grand Totals	658	

1. Totals by governments do not equal the sum of the major projects listed since totals include all planned projects. Converted from Naira at ₦1 = \$1.645.

in 1969 that the total number of institutional deliveries represented only 12.9% of the estimated pregnancies.

Tuberculosis.—Control is difficult because the protracted treatment regimen of daily medication over a 1- to 2-year period is hard to enforce in under-educated, isolated rural populations. Unnecessarily long and expensive hospitalization is commonly practiced in an effort to ensure daily treatment.

Dysentery.—This and other enteric diseases will continue to be major problems until safe, potable water is available to all people. The prevalence of these diseases is difficult to ascertain because only those people who evidence definite symptoms and seek treatment are diagnosed. There is a strong likelihood that a large number never seek treatment at all. Amoebiasis, for example, can exist

Table 8.5.—Health manpower

	I	II	III	IV
Growth by class				
Physicians	1, 978 (1965)	1, 264 (1967)	2, 683 (1970)	3, 112 (1972)
Dentists	72 (1965)	58 (1967)	95 (1970)	124 (1972)
Pharmacists	618 (1964)	613 (1966)	870 (1970)	1, 005 (1972)
Vet-Surgeons	77 (1964)	25 (1966)	137 (1970)	228 (1972)
Nurses	11, 024 (1967)	9, 502 (1968)	13, 046 (1970)	15, 529 (1972)
Midwives	11, 024 (1967)	3, 623 (1966)	14, 367 (1970)	16, 034 (1972)
Population ratios	1962	1972	1980	
Doctor per population	1/40, 000	1/22, 000	1/14, 000	
Dentist per population	1/931, 000	1/548, 000	1/400, 000	
Registered midwife per population	1/7, 800	1/4, 200	1/3, 000	
Registered nurse per population	1/7, 600	1/4, 400	1/3, 000	
Community nurse per population	1/370, 000	1/60, 000	1/40, 000	
Pharmacist per population	1/93, 000	1/68, 000	1/40, 000	
Medical laboratory technician per population	1/761, 000	1/283, 000	1/100, 000	
Radiographer per population	1/1, 800, 000	1/567, 000	1/100, 000	

passively for many years, finally manifesting itself as cysts in lungs, the brain, and other vital organs.

Gonorrhea.—In Nigeria, teenage migration to the cities and industrial areas has increased the prevalence of gonorrhea, although syphilis seems to be on the decline. As urban growth rates continue, the problems of urban slums, unemployment and underemployment will continue to foster an atmosphere conducive to venereal disease problems. Health education by radio, television, and all medical facilities and personnel could increase public awareness of the problem.

Measles.—It remains one of Nigeria's major problems, although reported incidences have been declining over the past few years. In the study of children at Igbo-Ora, measles was responsible for 23% of the deaths investigated. Measles control programs have been incorporated into the WHO/USAID smallpox eradication program in all States. According to the 1971 APHA report, reported measles incidences have declined from 59,062 cases in 1968 to 38,824 in 1970. The goal of the program was to provide measles vaccine to a target population of all children between 6 and 24 months of age with a coverage of 80%, and to achieve a minimum of 50% reduction in reported measles morbidity. Although these goals are far from realized, progress has been made in vaccination coverage. A total of 8,316,323 vaccinations have been administered since the inception of the program in 1967. There is danger, however, that with the conclusion of the 5-year pilot project, funding sources will cease and the program will falter. If this happens, major epidemics of measles can be expected to recur.

Schistosomiasis.—This continues to be a serious disease in Nigeria because of the lack of domestic water supplies, especially in the rural areas. Most rural residents use nearby ponds and streams infected with snail vectors for washing clothes and bathing. A survey¹ of a South-West village revealed

that 61% of the boys and 24% of the girls aged 7 to years were infested with *Schistosomiasis haematobium*.

Control measures consist of providing adequate water and sewage disposal systems, use of molluscicides, and chemotherapy. Sanitary measures are costly, take time, and may be especially difficult where they run contrary to local tradition and habits. The use of chemical molluscicides, either in single or repeated applications, is a partial but incomplete answer to the problem. Fragmentary data on the use of molluscicides have given a cost range of \$.60 to \$.80 per year per person using copper sulphate; \$.88 using pentachlorophenate; and up to \$1.39 for other substances. Although there are no chemotherapeutic measures that are entirely satisfactory for general use, hycanthone has been administered at approximately \$1.11 per year per person. Experience in Tanzania has shown that a comprehensive program to control the spread of the disease has been conducted for \$4.39 per person per year.

Onchocerciasis.—Its prevalence has resulted in migration of farmers from largely nonarable lands where large populations of blackflies breed. Many areas in the middle belt of Nigeria have been abandoned because of the high risk of infection. An epidemiological survey was conducted in 1956 to determine onchocerciasis infestation in Northern Nigeria; the study found an infestation rate of over 10%. Approximately 330,000 people had the disease, of which 20,000 were blind. Moreover, 13,000 of those blind were in the working age group between 10 to 50 years. People in some areas have developed enough immunity through diets rich in Vitamin A to slow down the

1. Donges, J., "An Ecological Study of *Schistosoma haematobium* in the Forest Region of South-West Nigeria," *Z. Tropenmed. Parasit.*, Vol. 23 (1972) Stuttgart, Germany.

progress of the disease. Unfortunately, vitamin A deficiencies are common. To date, the control of onchocerciasis depends upon control of the vector because no therapeutic agent sufficiently safe for mass administration is yet available. The problem is regional rather than national, and the whole savanna region from Senegal in the east to the Sudan and Ethiopia in the west is affected. There have been some successful pilot control projects in Africa, but onchocerciasis is still prevalent.

Guinea-Worm.—This infection is one of the most seriously debilitating diseases in Nigeria. A report on a village near Ibadan revealed prevalence rates so high that more than half of all men and women between 15 and 45 years of age were incapacitated for an average period of 3 weeks a year. The economic repercussions of the disease seriously hamper development progress. Eradication of the disease is directly related to the availability of pipe-borne water supplies. The village of Igbo-Ora reported an infestation rate of 60% in 1964. When piped water was made available to the population in 1965, incidence of guinea-worm was dramatically reduced. By 1967, no single case had been reported, although 13 miles away, where there was no piped water, the infestation rate continued to be more than 60%.

Lassa Fever.—It was not known in Nigeria until 1970. At that time, 23 suspect cases were reported in an area near Jos in Benue-Plateau State. The epidemiological unit in the state was able to trace the progress of the disease to one index case who had been hospitalized for two weeks. "Because of its case fatality rate of approximately 50%, a lack of understanding of the mode of transmission, and ignorance of the reservoir, lassa fever looms as an awesome, newly recognized disease of tropical Africa," according to a study made by Dr. D. E. Carey.² "Further studies are in progress to define the extent and prevalence of human infection to eradicate the reservoir, and to detect new cases of illness should they occur."

Control of epidemic and endemic diseases has improved with the establishment of epidemiological units in each State. These units were originally developed to monitor outbreaks of smallpox and measles as part of the WHO-USAID program. Since they were established, outbreaks of cholera, lassa fever, and other communicable diseases have been investigated by unit personnel. By tracing the spread of the disease back to index cases, these personnel have been instrumental in increasing the awareness and understanding of disease spread in various areas.

The *Third National Development Plan* has as its objective "the eradication of at least three most

deadly and prevalent diseases in the country within the next decade, starting with the control of malaria." The Third Plan lays out a \$32-million project for the development of facilities and personnel for the control of malaria on a national basis. The project's goal is to reduce morbidity and mortality from malaria by 25%. Much of this capital expenditure will be for the purchase of necessary equipment. Another \$32 million is to be spent for the creation of epidemiological units and control of communicable diseases. Nearly \$5 million is projected for consultants to develop the basic designs for the various health establishments under the "Basic Health Service Programme" (see table 8.3).

Health Care Facilities

Under the *Second National Development Plan*, substantial expansion occurred at the University Teaching Hospitals at Ibadan, Lagos, and Enugu and at the specialist hospitals in Benin, Enugu and Ilorin. The capacity of the University College Teaching Hospital at Ibadan was increased to 520 beds, with work in progress to add 320 beds. At the Lagos University Teaching Hospital, facilities for dentistry and other medical specializations were expanded while facilities were added for catering and dining, radio therapy, and the morgue. The OP Ward Theater, radio diagnosis, and physical medicine units were expected to be put into use before the end of 1975.

One of the major health sector emphases in the *Second National Development Plan 1970-74* is on the reconstruction and rehabilitation of health facilities damaged during the civil war. The dramatic increase in the number of health establishments and available beds since the end of the civil war in 1970 can be seen in the following table.

Year	Number of Health Establishments	Bed Capacity
1966.....	3, 403	27, 344
1967.....	2, 897	26, 557
1968.....	3, 336	27, 982
1969.....	3, 487	27, 742
1970.....	3, 499	29, 789
1972.....	4, 958	42, 698

The increases reported in 1972 reflect the progress made in the rehabilitation of medical facilities in the three Eastern States and in adding bed capacity in the Mid-West and Kwara States. In the State of Benin, almost 200 beds were added apart from the facilities at the University of Benin Teaching Hospital. Nationally, over 300 health and maternity centers and dispensary units were established between 1970 and 1974. Using the 1972 bed capacity of 42,698 in conjunction with the population estimate of 68,000,000, hospital bed availability was approximately 1/1,628 inhabitants. Although this ratio is lower

2. Carey, D.E., et al., "Lassa Fever, Epidemiological Aspects of the 1970 Epidemic, Jos, Nigeria," *Transactions of the Royal Society of Tropical Medicine and Hygiene* Vol. 66, No. 3, 1972.

than the recommended WHO ratio of 1/1,000 inhabitants, it is significantly better than that found in many other African countries.

The relatively good ratio of beds per population is in large part owing to the high number of mission hospitals. They provide approximately 25% of the total number of hospital beds in the country. In addition, they generally have a better reputation for good care than the public hospitals. One source reports that in some areas people will travel up to 50 miles to be treated in a mission hospital rather than be admitted into a closer but less desirable public hospital. Some mission hospitals are being absorbed by respective states.

Of the health establishments recorded in table 8.2, the largest category, which accounts for 1,605 or 32% of all institutions, is dispensaries and clinics. There is no information on the quality of these dispensaries and clinics but most are run by local governments. In the more remote areas of the country, village dispensers work out of shacks to provide rudimentary health care, usually without any professional medical supervision. Medication shipments are reported to arrive once a month but usually are insufficient to last beyond 2 weeks. Consequently, while a great number of health problems could be dealt with at this level of the delivery system, the unreliability of these units causes residents to either ignore proper medical care, turn to other sources to cope with their health problems, namely, tribal medicine men and unlicensed practitioners, or in some cases a nearby hospital.

Although there is no information on the nationwide distribution of urban dispensaries and clinics, 94 are located in Lagos. Because of their proximity to hospitals, these Lagos units have the opportunity for regular medical supervision and access to needed supplies.

Teaching hospitals, general hospitals and maternity hospitals/clinics account for 70% of total bed capacity. They also constitute the largest market for medical equipment and supplies.

In addition to the institutions indicated in table 8.2, there were 465 leprosaria, 45 infectious disease hospitals, 6 tuberculosis hospitals, and a variety of other specialist institutions in 1970, the latest year for which data is available.

Under the *Third National Development Plan*, the equivalent of \$1 billion is earmarked for the improvement of health care facilities by both the Federal and state governments. Projects cover improving technical and physical facilities, controlling communicable diseases, developing environmental health programs, expanding clinical and infirmary facilities, expanding general and specialist hospitals, and developing training and research programs.

By far the most serious problem of health facilities is that of geographic distribution of

hospital beds. The additional bed capacity resulting from implementing major projects identified in the Third Plan and the total additional bed count by state shown in table 8.4 will greatly improve the coverage.

Hospital Program Highlights

Federal.—The total allocation for the Federal Government health programs is \$509 million. The main feature of the Federal program is the expansion and take-over of teaching hospitals. Each state will have an additional Federal Government-owned teaching hospital. This should result in a total of 24 teaching hospitals by 1980. It is envisaged that additional capacity of about 8,000 beds will be created through this program costing \$324 million. In addition, \$9.72 million has been earmarked to assist the states in establishing new psychiatric hospitals and expanding the Aro Psychiatric Hospital at Abeokuta.

Federal Government projects also include the establishment of a 250-bed Federal Government Hospital in Lagos at an estimated cost of \$9.72 million. The ultimate goal is to have central referral hospitals for every 50,000 people. Each of these will have 6 rural satellites.

Benue-Plateau.—The state's hospital programs will receive a total allocation of \$19 million. Part of this will be spent on the construction of two general hospitals, each with 120 beds. Two psychiatric centers will also be established. The rest of the hospital programs will involve the reconstruction and expansion of existing hospitals. The additional bed capacity to result from these programs is estimated at 1,560.

East Central State.—A total allocation of \$59.3 million is planned for the state's hospital programs. The major projects are the construction of 18 new 200-bed general hospitals, the establishment of a new psychiatric hospital with 120-bed capacity, and the upgrading of 5 general hospitals. Other projects include modernizing and reequipping existing hospitals and constructing four dental clinics. It is estimated that the number of hospital beds in the state will be increased by 5,840 at the end of 1980.

Kano State.—The state's hospital programs will require a total estimated allocation of \$13.4 million. The major projects include the expansion of 2 hospitals in Kano each with 80 additional beds. Kano and Gwarso District Hospitals will be expanded to improve bed capacity in each hospital from 12 to 80. In addition, 2 general hospitals at Barbura and Jahun will be constructed. New hospital capacity planned in Kano State by 1980 is estimated at 600 beds.

Kwara State.—The main features of the \$17.8 million programs in Kwara are the construction of general hospitals at Kabbe, designed to raise bed

capacity from 84 to 105, improvement of 11 existing general hospitals, and the establishment of a psychiatric hospital. Dental centers and clinics will also be constructed at Lokoja and Ilorin. New hospital capacity is estimated at 600 beds.

Lagos State.—An allocation of \$67.2 million has been made for hospital programs in Lagos State. Part of this amount will be used for the modernization of the Lagos General Hospital. The Ikeja General Hospital will be expanded into a 500-bed specialist hospital with separate maternity and pediatric wards. A 500-bed orthopedic hospital will be built to replace the inadequate one at Igbobi. In addition, an orthopedic hospital annex will be constructed at Ikorodu to reduce congestion at Igbobi.

Other highlights of the Lagos State's hospital programs are the construction of general hospitals of 100 beds each at Ikorodu and Mushin and a maternity annex to the Island Maternity Hospital, Lagos, with facilities for additional 200 beds. A 200-bed general hospital is proposed for Apapa/Ajegunle, Ebute-Metta/Yaba, Surulere, and Amuwo/Odofin. Another very important state project is the new psychiatric center that should provide accommodation for 700 patients. It is expected that by 1980 there will be 2,900 additional beds in Lagos State.

Mid-Western State.—An estimated \$33.5 million is proposed for Mid-West State hospital programs. These will consist of the upgrading of three hospitals at Agbor (300 beds), Auchi (300 beds) and Warri (500 beds) to specialist hospitals. The project will also include facilities for psychiatric care. In addition, the second phase of the psychiatric hospital at Uselu will be completed by 1980. Three other general hospitals will be constructed at Uni, Ogwashiuku, and Afuze. Other projects will include modification and expansion of existing government hospitals at Benin City and Asaba, Forcados and Sapele. The bed capacity in the specialist hospital at Benin City will be increased from 262 to 500. Two thousand additional beds are expected from these programs by 1980.

North-Central State.—An estimated \$8.4 million is proposed for this state. Part will be spent for the improvement of the general hospital at Katsina to include 195 additional beds, improvement in the general hospital at Daura, including 86 wards, and the hospital at Kafandhan (126 additional beds).

It is also planned to construct a Maxillo-facial unit with 84 beds, an outpatient department, an X-ray department and a laboratory at the dental center of Kaduna.

Expansions of the state psychiatric hospital and the leprosy institutions in Katsina and Zaria are also part of the plan.

Further hospital expansions, training of nurses and midwives and the construction of a school of technology for training of paramedical personnel are also being considered.

North-Western State.—A planned \$18.4 million will be allocated to the state for upgrading general hospitals at Shinkati and Mokawa, purchasing equipment for hospitals under construction, constructing traumatology wards as well as a psychiatric ward; modernizing existing hospitals; establishing five contagious diseases wards in existing hospitals, and training nurses and midwives.

Western State.—A total of \$11.8 million has been allocated to the state for the expansion of the Ring Road Hospital at Ibadan; the expansion of dental centers; the construction of two leprosy hospitals, three orthopedic wards, hospitals, and a psychiatric unit at Akure; improvement of four general hospitals; the construction of 35 basic health units, 35 health centers and 700 health clinics; and the establishment of a dental clinic. Also, the state plans training programs for nurses and midwives.

Rivers State.—An allocation of \$27.5 million has been made to expand the dental center in Port Harcourt, maternity and children's wards in existing hospitals, and to complete the hospital started during the Second Plan period.

The state expects to construct additional health centers and health clinics. There are plans for a training program for nurses, midwives and paramedical personnel.

North-Eastern State.—Capital expenditures of \$10.9 million will be allocated for the expansion and improvement of the general hospital at Gombe; improvements in four other hospitals; the construction of eye clinics at Maiduguri, Yola and Mubi; the establishment of dental clinics at Yola and Maiduguri, and the construction of 40 basic health units, 160 health centers, 200 mobile clinics and 800 health clinics. As a result of this program, the State will have 3,120 beds.

The training program provides for training of nurses, midwives and paramedical personnel.

South-Eastern State.—Allocation of \$18.6 million is planned for the improvement of four hospitals, the establishment of a psychiatric hospital at Calabar; and the construction of 14 basic health units consisting of health centers and mobile clinics.

It is also planned to construct a school of nursing at Calabar and to establish a small drug factory for commonly used drugs.

Hospital Profiles

The University Teaching College Hospital in Ibadan currently has 830 beds, including 300

from a recent addition. Hospital officials expect to have 1,500 beds by 1980. The hospital was opened in 1957 and since then 5 million patients have been treated there. It is owned by the Federal Government. Its staff includes 250 resident doctors, 100 lecturing doctors and 450 nurses and paramedical personnel.

This facility also has an emergency unit, treating 500–800 patients per day; an emergency unit for children; a general out-patients department treating 500 patients a day; a consultative out-patients department engaged in treating special, interesting cases for teaching purposes; and medical units for all medical specialties, including a psychiatric department. The Teaching Hospital has 8 operating theaters and about 20 X-ray units.

In 1975, approximately 200 doctors graduated from the hospital. The hospital is regarded as the best teaching hospital as well as the best-equipped specialist hospital in Nigeria.

The hospital trains annually about 20 radiographers, medical laboratory technologists, 100 nurses, and 40 midwives. By 1980 the hospital will have additional facilities for training records personnel, physiotherapists, occupational therapists, and hospital administrators.

Over the next several years, the Federal Government plans to continue to expand the hospital. Part The out-patient facility was to have been ready for tender in early 1976. This expansion will cost approximately \$13 million.

The Adeoyo Hospital in Ibadan is owned by the Western State Government and is the oldest of the six specialist hospitals in the state. It has 460 beds. Patients are treated by 2 surgeons, 4 obstetricians, 2 pathologists, 2 anesthetists, 2 pediatricians, 1 ophthalmologist, 1 dermatologist, and 20 general-duty doctors.

It has a casualty department that is open for 24 hours and an out-patients department open from 8 a.m. to 3 p.m. Fees for treatment are minimal (\$.32 to obtain a patient card; \$.40 for an injection, etc.) Most common diseases treated are anemia, malaria, diarrhea, and sickle-cell anemia.

The Lagos University Teaching Hospital, in Yaba, Lagos, increased its bed capacity from 620 to 1,000 with the new medical, surgical and gynecological ward completed in 1975.

Since 1971, the hospital has had a 4-year post-graduate course leading to fellowship in the Nigerian Medical Council. The hospital plans to teach more specialist doctors in internal medicine, obstetrics, gynecology and anesthesiology.

The hospital currently has one surgical and one obstetrics operating theatre, an X-ray unit in the emergency unit, and the main X-ray unit in the main building. In its radiation-biology depart-

ment, the hospital has a very well-equipped laboratory.

Clinical and Research Laboratories

Research and pathology laboratories are usually housed in hospitals, but there are a number of special laboratories in research departments of universities. Currently, the Government utilizes the services of laboratories at the Universities of Ibadan, Lagos and Zaria. It is expected that services will be provided by laboratories in the new medical schools at Enugu, Benin and Ife. Additional research is conducted through a variety of establishments for the control of communicable diseases. These include the Federal Malaria Service; Tuberculosis Service Units in Lagos, Ibadan, and Enugu; the Nigerian Medical Research Council Laboratories, where extensive work is being done on identification of the infectious hepatitis virus; and the Leprosy Research Institute in the East-Central State.

Health Manpower

It is generally agreed by both Nigerian physicians and government officials that the critical shortage of trained health manpower is one of the most serious obstacles to effective health care delivery. The extent of the shortage is not known, however, since there has never been a complete compilation of statistics on active health personnel. This means that health manpower development plans that have been based on "guesstimates" which can only approximate the actual situation. Table 8.5 presents estimates of numbers of personnel in various categories for specific years, according to four different sources.

The WHO target for the region is a physician/population ratio of 1/10,000, as compared to the estimated 1972 actual ratio of 1/22,000. Nigeria's "doctor density" is much better than that of other equatorial African countries, possibly because of the 3,112 physicians, 1,280 or 41% were expatriates. To reach the WHO target in 1980 would require more than doubling the present number.

These overall country figures, however, obscure the fact that distribution patterns create even more acute personnel shortages in some geographic areas. The following table presents data on population, physicians, and physician/population ratios in each of the regions existing prior to 1967. The data is taken from the 1971 edition of the *West Coast Directory*³ but is not documented according to year.

3. *The West Coast Directory*, 1971 M.B.O. Ishola, ed., B.O. Ishola Publishing Co. (Lagos) 1971.

Region	Population	Physicians	Physician/ population
Lagos	1,443,576	414	1 / 3,500
Western	9,487,525	451	1/21,000
Midwestern	2,535,838	43	1/59,000
Eastern	12,170,602	351	1/35,000
Northern	29,758,559	316	1/94,000

Most physicians tend to establish practices in the more urban southern part of the country, leaving a dearth of doctors in the northern section. Estimates of physicians-to-population ratios in the north are as low as one per 150,000. As in most developed countries, health personnel tend to concentrate in the urban areas where job opportunities are better, salaries higher, and working conditions more desirable than in the rural areas. Physicians are no exception. Even when they do decide to practice in rural areas, they are most likely to return to their original tribal areas. According to one source, most of the physicians in Nigeria are of Ibo ancestry and retain strong ties to their southeastern homeland. Consequently, few of them are willing to relocate to northern areas where tribal pride and cliquishness make acceptance and communication difficult.

Additional attempts to alleviate the demand for more physicians have taken the form of the creation by the Nigerian Government of a national committee to recruit doctors from abroad. Since its inception in 1967, the program has met with moderate success. According to the Ministry of Health and Social Welfare Medical Statistics Division of Lagos, the number of foreign physicians in active practice represents almost 50% of the total number in Nigeria in 1970.

A 1967 request to the Philippine Government resulted in the arrival of 43 Filipino doctors under 3-year contracts to practice in hospitals in Southern Nigeria and Lagos. Some 30 Egyptian doctors are working in Northern Nigeria, and a number of physicians from the Soviet Union are working near Jos. Additional medical personnel from Poland, Yugoslavia, India and Britain are located in various parts of the country.

If present trends continue, the combination of increased internal production of physicians and sustained immigration of foreign physicians should improve the physician/population ratio to the proposed goal by 1980.

The recent establishment of a new medical school at Ahmadu Bello University in Zaria, Northern Nigeria, might have an impact on increasing the number of physicians in the north. Presumably most of the students are recruited from surrounding communities and are familiar with the northern tribal languages and customs. The first medical class graduated in 1973. In addition, the recent establishment of a one-year obligatory service requirement should increase the number of doctors in rural areas.

Although the medical schools have been producing doctors for less than a decade, the training received at them is rated quite good by a team of American consultants. They are modeled on British schools and demand high standards of educational quality. At the present time Nigeria has six medical schools; University of Lagos, University of Ibadan, and the previously-mentioned Ahmadu Bello University, as well as new schools at the Universities of Nigeria, Ife, and Benin City. These facilities should increase drastically the supply of physicians.

The *Third National Development Plan* anticipates that "a combination of incentive measures will be taken during the Plan period to induce even dispersal and distribution of doctors among the population centers." Another priority of the Third Plan is the "early implementation of the teaching and general hospitals programs in the States, in order to provide well equipped institutions and facilities for medical practice, the shortage of which has constituted a major impediment to the even deployment of doctors in the country." A new cadre of medical personnel is planned to perform ordinary medical duties in hospitals and other centers to relieve physicians from simple and routine chores. Training of paramedical personnel will also be stepped up.

The Third Plan identifies planned capital expenditures of \$113.5 million for the combined Federal and state governments' training programs. Federal allocation of \$39.2 million will be used mainly for paramedical training and creating a health service training school for nursing staff and nursing auxiliaries. The total allocation for all 12 states of \$74.3 million is earmarked principally for the expansion of facilities for the training of nurses and midwives. All states are also expected to establish schools of health technology to train personnel for the basic health services program.

MARKETING APPROACHES

Channels of Distribution

Manufacturers employ essentially three different methods of distributing equipment to the health sector. The most prevalent is through a distributor located in Nigeria who is responsible for the sale, installation, post-sale servicing, training, and some financing. The second channel is an aggressive sales agent, who uncovers the leads, cables the principal to send in technical sales personnel to develop the requirement, and then works with the factory representative and the customer to obtain the contract. The third approach is for European-based personnel to make periodic trips to Nigeria to handle sales, service, training, and installation.

Trade sources in Nigeria "guesstimate" that there are 300 importers engaged in the supply of equipment and materials to the health sector. However, it appears that less than ten firms account for a high percentage, perhaps 70% to 80%, of total supply.

One of the leading importers of medical equipment is Watson & Sons (Electro-Medical) Nigeria Ltd., in Apapa, Lagos with branches in Enugu and Kaduna. Watson represents GEC (United Kingdom) and Picker International of Cleveland, Ohio. They claim to have 85% of the X-ray apparatus market.

Hewlett-Packard International of Palo Alto, California is represented by Teil Electronics Co. Ltd., Lagos. Union Trading Company of Africa Ltd. (UTC) Lagos, represents Hospitalia International.

Drug House Nigeria Ltd., in Yaba, imports X-ray equipment, operating theater equipment, laboratory and diagnostic equipment as well as equipment for hospital wards. It also imports orthopedic equipment from Stryker International of Kalamazoo, Michigan.

Employing a full-service distributor or sales agent, of course, has the advantage of providing vigilance over the market for new sales opportunities and, in the case of a distributor, collections, parts and service, and training, all important in Nigeria. The European-base approach is recommended by one U.S. firm employing it for its highly technical equipment to perform sales, training and service in spite of the lack of appropriate locally-based personnel.

Government tenders, which will be increasingly important as a source of new business in the health sector, are published in daily newspapers. Local trade sources indicate that government business requires continuous monitoring and follow up to avoid endless delays and lost business.

A list of prospective agents and distributors for medical equipment and supplies and of principal customer contacts is available from the Country Marketing Manager - Nigeria, Office of International Marketing, U.S. Department of Commerce, Room 6009, Washington, D.C. 20230.

Sales and Marketing Strategy

Some distributors contend that the combination of the number of major hospital construction projects and the limited staff in government ministries make prospects bright for firms proposing turn-key contracts in which the general contractor designs constructs and equips the facility. Others urge caution and point to instances in other countries where there has been customer dissatisfaction with the results of turn-

key jobs. For example, hospital department heads of the various medical specialties generally want to take a leading position in the selection of equipment and may not have the chance in the case of turn-keys. Dissatisfaction may also result from lack of continuity between the construction phase and operations.

Although several U.S. firms do have turn-key contract capability, American executives familiar with the Nigerian health sector feel that there are good prospects for both equipment sales and other professional services without a turn-key contract. They cite the desire on the part of public administrators to maintain authority over direction and control. They, however, do want to acquire expertise in medical and managerial specialties, facility design and construction, as well as advanced equipment which can be supplied by American sources. The Federal Ministry of Health, for instance, is very interested in U.S. technology. Observers also point out that now that Nigeria's foreign exchange revenues have climbed so dramatically, the Government is independent of supplier credits for project realization.

American equipment manufacturers will have to maintain close contact with the market to know whether decisions on equipment requirements will be made by turn-key contractors, Ministries of Health or hospital staffs.

University, Federal and State hospitals are expected to buy the most sophisticated equipment available. Whether they buy American equipment depends more on how soon and how well U.S. suppliers develop their marketing plan for Nigeria rather than on limits posed by purchasing power or the quality of professional skill.

Parts Warranties

Most equipment imported by Nigeria is purchased with a 6-month to 1-year parts warranty. Nigerian hospitals often specify at least 2 years' supply of spare parts be furnished with medical equipment, and they also make equipment maintenance a prerequisite.

Credit Terms

American suppliers have the reputation for being more rigid than European firms on the issue of deferred payments. To assist U.S. exporters in offering competitive credit terms, the Export-Import Bank of the United States offers a variety of facilities which are outlined later in this Survey.

Advertising and Sales Promotion

Most Nigerian medical associations have annual

conferences. The most significant conference in terms of sales promotion is the Nigerian Medical Association Conference held annually in April. This conference attracts members from all areas of the medical profession and includes an extensive exhibit display of the most sophisticated medical equipment and supplies from manufacturers represented in Nigeria.

In addition, Nigerian physicians frequently attend international medical conferences and congresses. Nigerian doctors, like those of other countries, are reported to dislike listening to "sales pitches." Astute marketers of medical equipment therefore prepare papers for presentation by physicians before medical

conferences on medical procedures and advanced technology.

There are several Nigerian publications, suitable for advertising equipment, supplies, and professional services, which focus on the various Nigerian medical and dental specialities. Among these are *Nigerian Medical Journal* and *Nigerian Nurse*, both published by Liberated Publications Nigeria Ltd., Ikoja. Most U.S. advertising agencies catering to international business requirements will be able to furnish data on media appropriate to the needs of each advertiser. A list of titles and their publishers may be obtained from the Commerce Country Marketing Manager whose address was given previously under "Channels of Distribution."

TRANSPORTATION

Nigerian policymakers are acutely aware that a sound, efficiently run transportation sector is fundamental for balanced economic growth in any society. It must be able to support commerce and industry as well as agriculture if development efforts are to succeed.

Past and present Nigerian development plans reflect this basic principle. About one-fifth of the capital outlay of the *First National Development Plan* (1962-68) and one-third of the outlay in the *Second Plan* (1970-74) were devoted to the transportation sector. Fully one-fifth of all *Third Plan* (1975-80) expenditures will be for this sector.

The Government first articulated national transportation objectives in a 1965 white paper which called for coordinated development within the sector and increased economic efficiency "and, by implication, the support of national objectives like the opening up and binding together of the nation."¹ The *Third National Development Plan* adds two more specific goals: increased safety and better service.

The overall operating performance and internal coordination of the various transportation subsectors has not been satisfactory in many cases. In an effort to improve this situation, the Nigerian Government authorized studies of several problem areas with the idea of implementing the recommendations during the Third

Plan period. The subsectors studied include trunk roads (1971-72), railways (1972), airlines (1973), and dockyards (1974). Some of the problems common to all subsectors are (1) lack of executive capacity, in both the managerial and operating phases; (2) capital structuring problems (The capital base on which most companies in the transport sector operate is inadequate.); and (3) institutional and bureaucratic organization and red tape. Throughout the Third Plan period the Nigerian Government will actively attack these general problems through increased educational and technical training programs, institutional reforms, and better planning and coordination among agencies and corporations.

While these measures will contribute to achieving Nigerian transportation objectives, the most urgent need is for the physical improvements described in the next four chapters.

As the Third Plan was promulgated early in 1975, transport bottlenecks loomed as the greatest potential obstacle to development progress—a potential increasingly realized in the months since.

American companies already have provided solutions to a few of Nigeria's transportation problems, but as the following chapters show, there remain many opportunities for U.S. firms to supply the goods and technology for this critical aspect of the country's development.

1. *Third National Development Plan*, p. 199.

Transportation capital investment by governments and subsectors

(in millions of U.S. dollars)¹

Subsector	1976	1977	1978	1979	1980	Total
Roads						
Federal.....	1,612.0	1,848.1	1,589.3	1,217.2	899.0	7,165.6
State.....	346.8	417.9	367.1	293.1	194.6	1,619.5
Railways (Federal only).....	57.7	85.6	430.3	440.4	442.0	1,456.0
Civil aviation (Federal only).....	98.1	165.4	208.6	137.9	175.0	785.0
Nigeria/Airways (Federal only).....	20.7	30.8	16.6	13.2	2.5	83.8
Inland waterways						
Federal.....	16.3	20.0	18.4	14.3	9.2	78.2
States.....	20.4	20.8	21.6	6.9	3.1	72.8
Maritime service (Federal only).....	3.7	6.7	5.4	3.8	3.0	22.6
Shipping service (Federal only).....	29.3	54.9	43.3	33.4	33.4	194.3
Ports (Federal only).....	78.1	118.0	136.5	109.2	87.9	529.7
Government Coastal Agency.....	1.7	1.8	1.4	.9	.9	6.7
Total all States.....	367.2	438.7	388.7	300.0	197.7	1,692.3
Total Federal government.....	1,917.6	2,331.3	2,449.8	1,970.3	1,652.9	10,321.9
Grand Total.....	2,284.8	2,770.0	2,838.5	2,270.3	1,850.6	12,014.2

¹ Converted from Naira at ₦ = \$1.645.

Source: Third National Development Plan.

Chapter 9 AVIATION

HIGHLIGHTS

Nigerian civil aviation activity, already growing rapidly, is on the threshold of even more dynamic expansion certain to follow completion of the country's far-reaching airport construction program in late 1978. Mounting public and business demand for air transport services already is reflected in rising domestic passenger traffic, increased charter activity, and growing private and corporate aircraft ownership.

So far, domestic aviation has been virtually limited to daytime flight under visual flight rules (VFR), but the Nigerian Ministry of Civil Aviation is committed to making Nigeria one of the few countries in the world with precision navigational aids at every airport having scheduled service. All told, some \$500 million will be spent from 1975 to 1980 on national aviation system improvements.

SECTOR ANALYSIS

Most aviation equipment sales in Nigeria are to agencies of the Federal Military Government: the Ministry of Civil Aviation, Nigeria Airways, and the Nigerian Air Force. However, private charter companies and individual and corporate operators constitute a growing segment of Nigerian aviation.

Nigerian customers for aviation equipment and their plans and requirements are discussed below. A quick-reference list with addresses is shown as Appendix 9.1.

Ministry of Civil Aviation

The elevation of the Civil Aviation Department of the Ministry of Transport into a separate ministry in June 1975 reflects the importance the government attaches to national aviation system development.

By creating the Ministry of Civil Aviation, the government is bringing under unified control all of its aviation activities—airport development, aviation policy, air safety, meteorological services, and liaison with the semi-autonomous

Nigeria Airways and the Nigerian Civil Aviation Training Center at Zaria, North-Central State.

Airports

The chief preoccupation of the new ministry—and the main source of sales opportunities for U.S. firms—is Nigeria's massive airport development program. Scheduled for completion in 1978 at a total cost of approximately \$450 million, the program entails replacing or expanding and upgrading 16 airports.

Within the Ministry of Civil Aviation, the Airports Authority is responsible for airport construction projects. (Under the previous ministerial structure, which probably will persist for some time beyond the official July 1, 1975 reorganization date, this was the responsibility of the Chief Aerodrome Engineer of the Civil Aviation Department, Ministry of Transport.) Design and construction supervision are being performed under contract by Netherlands Airport Consultants (NACO). Both terminal and en-route nav aids, however, are the responsibility of the Principal Signals Officer, who is assisted by Telcom, Inc. of McLean, Virginia.

All airports used in domestic scheduled service will be capable of accommodating at least medium-haul jet transports; runways will be a minimum of 8,000 feet with sufficient load-bearing capacity for Boeing 737 traffic. All will have at least Category I ILS (instrument landing systems), upgradable to Cat II, for both approaches to each instrumented runway, and will have commensurate approach light systems.

Four international airports (Lagos, Kano, Maiduguri, and Port Harcourt) and one alternate (Ilorin) are designed for 9–12,000 foot runways stressed for Boeing 707 or 747 traffic. These will be equipped with Cat II ILS upgradable to Cat III–A. They will be the first to have ASR (airport surveillance radar), ASDE (airfield surface detection equipment), three-bar VASIS (visual approach slope indicator systems), and advanced meteorological apparatus.

Most Nigerian airfields now are equipped only with NDB's (nondirectional beacons), but all are to have VOR/DME installations (VHF omnirange and distance measuring equipment) during the Third Plan period.

All airports will have badly needed new terminal

facilities; the Lagos airport will have a "finger"-type terminal equipped with passenger bridges.

Airport development was originally planned to include 17 airfields in a three-phase program as follows: ("I" denotes those to be constructed for international service)

Phase I, to be begun 1973 /74:

Lagos (Ikeja) International (I)
Calabar
Jos
Kano (I)
Ilorin (I)
Enugu

Phase II, to be begun 1974-75:

Port Harcourt (I)
Sokoto
Kaduna
Maiduguri (I)
Benin
Ibadan

Phase III, to be begun 1974-78:

Warri
Zaria
Gasau
Makurdi
Yola

So far, the Ministry and its contractors have achieved an enviable record of progress; slippage has been measured in weeks and months rather than in years and decades incurred in some other government projects. Ministry executives and consultants are confident of completing the airport construction program by the end of 1978—or within 6 months of the original timetable.

The statuses of some of these projects are shown below:

Lagos (Ikeja) International Airport.—Making Lagos Airport the showcase of Nigerian civil aviation will consume roughly half of the entire airport development allocation. The \$61 million earthworks and pavement contract was awarded in mid-1974 to German constructor Strabag Bau AG, which also won the \$171 million terminal building job. A 12,000 foot parallel runway will handle wide-bodied jets. Nav aids ordered before the present program were installed by early 1975: Plessey (U.K.) Cat II ILS for the existing runway, Standard Lorenz (German) VOR, and Face (Italian) DME.

Kano International Airport.—Work on the Kano Airport expansion is nearing completion. Located in the heart of largely Moslem northern Nigeria, Kano has become the gateway for the annual Hajj (pilgrimage) to Saudi Arabia. It also serves as a jumping-off point for regular flights connecting Nigeria with Europe and the Near East. Like Lagos International Airport, Kano is experiencing a dramatic increase in freight traffic due to severe port congestion in Lagos. (Even automotive engines and chassis for the new Peugeot assembly plant at Kaduna are flown in from France through Kano.)

*Table 9.1.—Nigerian Airways
spending priorities in the
Third Plan*

	Millions of U.S. dollars ¹	Percent of total
Aircraft	57.6	69.0
New offices and residential housing for staff	18.1	22.0
Hangars	4.1	5.0
Ground support equipment	3.3	4.0
Medical center for staff	.4	.5
Training school	.3	.4

1. Converted from Naira at ₦1 = \$1.645.

Source: *Third National Development Plan*.

As of mid-1975, Kano was the only airfield besides Lagos that had VOR installed and operational; Cat II ILS (Standard Lorenz) was expected to be installed by the end of the year.

Ilorin Airport.—Ilorin, about 170 miles northeast of Lagos, will be the alternate for Ikeja. Runways, lighting, and instrumentation will accommodate the largest jets in international service under Category II conditions, although the 9,000 foot runway length would not permit takeoff of larger jets, fully loaded and fuelled, for European destinations. Construction (\$15.6 million) is in progress; the Stevens Group is the earthworks and pavement contractor.

Calabar Airport.—The \$6.6 million earthworks and pavement construction is underway. Airfield lighting is being supplied by G.E.C. Overseas Services (U.K.) under a contract let in advance of those for the present program.

Jos Airport.—Construction began in late 1974 on the \$8.2 million earthworks and pavement.

Enugu Airport.—Civil construction is well advanced. VOR/DME has been procured; Standard Lorenz ILS is expected to be installed by the end of 1975.

Benin, Kaduna, and Sokoto Airports.—Tenders were being evaluated in May 1975, with contracts to be awarded later in the year.

Zaria.—The airfield at Zaria, site of the National Civil Aviation Training Center, will be improved to accommodate larger enrollment and more sophisticated equipment. Establishment of commercial service facilities is under consideration. A new airport may be constructed in lieu of expanding the existing field.

Gusau.—Originally intended as a full-fledged domestic service airport capable of taking B-737 traffic, Gusau now apparently will be limited to STOL (short take-off and landing) use.

Makurdi.—Makurdi too was to have been a 737-capacity civil airport, but has been dropped from the civil aviation program. It is said the site may be used as a Nigerian Air Force base.

En Route Facilities

En route navigation also will be brought up to modern standards with the addition of VOR/DME installations (besides those located at airfields), establishment of air/ground VHF coverage throughout Nigerian airspace, and the procurement in 1978 of six to nine ARSR's (air route surveillance radars).

Ministry Equipment Requirements

The Ministry of Civil Aviation is virtually starting from scratch in equipping Nigeria with a modern national aviation system. Requirements for selected types of equipment and progress toward satisfying them are described below.

VOR/DME.—Eight installations of the 22 that are to be operational by 1980 (17 terminal VOR and 5 for en route sites) have been purchased. Ikeja and Kano are operational; Wilcox VOR's are in place at Calabar, Oshogbo, and Port Harcourt; equipment has been purchased for Enugu, Kaduna, and Sokoto. Fourteen stations remain to be procured; at least eight should be ordered by 1978.

ILS.—Of the at least 14 airfields to be equipped, only three systems have been obtained so far: the Plessey system at Ikeja (Lagos) has been installed and calibrated; Standard Lorenz units for Kano and Enugu were shipped in June 1975 and are to be installed by the end of the year. A minimum of three more Cat II (upgradable to CAT III-A) and eight more Cat I (upgradable to Cat II) systems are to be purchased for installation by the end of 1978.

ASR.—Five units will be purchased together for installation in the Lagos, Kano, Port Harcourt, Maiduguri, and Ilorin airports. Telcom engineers performed site surveys in the first half of 1975 for specifications to be issued in September; tenderers will be encouraged to conduct their own site surveys as well. Award was expected by the end of the year. Selection will probably influence sourcing for a radar simulator to be purchased for the Air Traffic School of the National Aviation Training Center at Zaria. Also, ASR may later be installed at domestic airports with relatively high traffic densities.

Airfield Lighting.—Package contracts covering everything from approach light systems (ALS) to ramp illumination are being let. The first ("AFL-1"), covering Lagos, Kano, Port Harcourt,

Table 9.2.—Nigeria Airways operations, 1972–74 (scheduled service)

	1972/73 ¹	1973/74 ¹	April–July 1974
<i>Aircraft miles flown</i>			
Domestic	2, 315, 591	2, 813, 593	1, 033, 846
West African coast	601, 597	618, 097	205, 324
Other international	2, 911, 508	2, 305, 090	1, 244
TOTAL	5, 828, 696	5, 736, 780	1, 240, 414
<i>Passengers carried</i>			
Domestic	209, 516	250, 185	116, 308
West African coast	37, 318	37, 592	13, 537
Other international	47, 174	43, 774	15, 309
TOTAL	294, 008	331, 551	145, 154
<i>Passenger-miles</i>			
Domestic	62, 818, 306	77, 883, 267	34, 402, 901
West African coast	20, 825, 501	20, 996, 508	7, 323, 907
Other international	117, 286, 325	119, 223, 866	43, 873, 029
TOTAL	200, 930, 132	218, 103, 641	85, 599, 837
<i>Passenger load factor</i>			
Domestic	57.2%	53.6%	60.7%
West African coast	38.5%	38.9%	40.9%
Other international	36.8%	35.6%	39.2%
ALL SERVICES	41.7%	40.9%	45.9%
<i>Ton-miles performed²</i>			
Domestic	6, 330, 376	7, 885, 086	3, 441, 426
West African coast	2, 077, 344	2, 234, 639	811, 200
Other international	15, 623, 506	15, 403, 754	6, 376, 712
TOTAL	24, 031, 226	25, 523, 479	10, 629, 338

1. Years ending March 31.

2. Includes passenger/excess baggage, freight, and mail.

Source: Nigeria Airways, Limited.

Ilorin, and Maiduguri, went to G.E.C. Overseas Services with a price tag of \$11.9 million. The domestic airports, slated to receive Category I ALS instead of Cat II and 2-box VASIS instead of 3-box, will be lumped together in a second contract (AFL-2). A NACO officer expects the AFL-2 contractor to be from the same prequalified list used for AFL-1, but he reports that no U.S. firm responded to the prequalification notice. This would probably limit the competition to G.E.C., Siemens, Plessey, Philips, and Koito. Other sources say there may be a possibility for another supplier to sell at least the rotating beacons for all airports; control tower roofs on which the beacons are to be mounted apparently were designed for a stress not to exceed 1,000 lbs. This may require lighter-weight units than those made by the prequalified firms.

ASDE.—Each international airport will be equipped.

Meteorological Equipment.—Meteorological radar will be installed at the international airports. These, plus some of the busier domestic fields, will have RVR (runway visual range) and automatic, integrated meteorological stations with digital displays.

Flight Calibration Unit.—Between \$5 million and \$7 million will be spent for an instrumented aircraft to check and calibrate navigation and landing aids.

Communications.—VHF installations at Maiduguri and other points near the Nigerian frontiers will be upgraded and linked through the Ministry of Communications microwave network to provide countrywide VHF coverage. This development, however, awaits improvement of the GEC-Marconi (U.K.)-installed microwave system; some sources say the relay towers were not made high enough for line-of-sight transmission.

The Kano-Lagos speech/teletype ISB (independent sideband) link was to be extended to Port Harcourt by the end of 1975. Kano-Niamey and Kano-Brazzaville circuits are scheduled for installation by mid-1976.

Also under consideration is construction at Kano of a southward-looking HF log-periodic antenna to enable contact with aircraft at Lagos and elsewhere along the Nigerian coast.

ARSR.—A system of at least six and perhaps as many as nine air route surveillance radar stations, along with associated traffic control systems, will be procured in 1978.

Nigeria Airways

Nigeria Airways, Limited, the flag carrier, feels acute pressure from mounting demand for domestic passenger services and international air

freight handling. These pressures should translate into substantial requirements for high quality, easily maintained aviation equipment.

Nigeria Airways serves principal cities within the country as well as a number of others along the west coast of Africa and flies to Amsterdam, London, and Rome. The carrier's fleet consists of two 707's, two 737's, four F-28's, and five F-27's; three more F-28's will be delivered in 1976. The airline is considering buying additional planes for European service but as of June 1975 had not defined its requirements in terms of capacity, configuration, or other characteristics.

Table 9.1 shows Nigeria Airways expenditures under the *Third National Development Plan*. Four of the seven F-28's represented by the first entry were delivered by mid-1975.

Booking centers account for \$7.4 million of the \$18.1 million shown for office and residential construction. Reservations are accepted and reconfirmed only at downtown booking offices—not at air terminals. Reservations for successive itinerary points often are not received within 3 days of booking at the point of origin. Nigeria Airways reported in mid 1975 that it does not plan to computerize its reservation system.

The ground support equipment, some of which is on order, is believed to include ground power units, electric starters, and battery operated tugs as well as trolleys, self-service carts, and conveyors for baggage.

Generalized training of Nigeria Airways pilots and mechanics is done at the Civil Aviation Training Center at Zaria, but the airline itself conducts type-training—the object of the \$300,000 shown in table 9.1.

The carrier performs general maintenance on its 737's, F-27's, and F-28's, but does only line maintenance on the 707's. These are serviced in London by British Airways.

Nigeria Airways has a near-monopoly on ground handling of all commercial flights through Nigeria, including passenger service and cargo handling. However, the airline's personnel and equipment resources have not kept up with the mounting levels of passenger and particularly freight traffic experienced in 1975. Cargo tonnage at Lagos in the first quarter of 1975 is estimated at 14,000 tons, up 20% over the same period in 1974.

Other carriers have found it necessary to augment Nigeria Airways' contract service with their own personnel and equipment. The problem of coping with incoming air freight has been made more acute by the congestion of the principal seaport, Apapa, at Lagos, and by the proportion of Nigeria Airways materials handling equipment that is in disrepair. UTA, which has permission to handle its own DC-10's and those of Swissair and Lufthansa, reportedly has been allowed to bring in

its own scissor-lift high loader, in addition to the one Nigeria Airways has available.

Passenger load factors (passenger-miles/available seat miles) fluctuate widely on a seasonal cycle, with the greatest traffic concentration occurring in July, August, and September. The range of load factors in the January-July period of 1974 illustrates this phenomenon:

<i>Service</i>	<i>Minimum</i>	<i>Maximum</i>
Domestic	50.3	65.4%
West African coast	38.1	49.1%
Other international	25.8	58.4%

Table 9.2 shows the recent history of Nigeria Airways flight operations in more detail. The drop in international traffic in 1973 occurred when the airline suspended its service to Brussels, Frankfurt, and Zurich.

Domestic load factors probably have improved since July 1974,¹ due to the increase in foreign business visitors and the dramatic increases in middle-class Nigerians' disposable income. It is estimated that domestic passenger load factors were running at least 5% higher in the first 7 months of 1975 than in the corresponding period a year earlier.

In May 1975, the Nigerian Government gave Nigeria Airways exclusive authority to operate charter flights to Saudi Arabia for the annual Moslem pilgrimage. The carrier has to wet-lease all aircraft required. In June 1975, it solicited quotations from a number of American charter companies for the pilgrimage later that year.

Nigerian Air Force

The Federal Ministry of Defense, through the Nigerian Air Force (NAF), owns an aircraft fleet consisting of 15 MIG-17 jet fighters, 6 F-27 medium transport aircraft, 15 L-29 single engine jet trainers, 10 Piaggio-149 and 20 Scottish Aviation Bulldog basic trainers, 12 Dornier-27 and 6 Dornier-28 light utility aircraft, 3 Piper Navajoes, 4 B.O.-105 light utility helicopters, and two Puma heavy transport helicopters (not all of these aircraft are operational). In addition, the NAF has ordered six Lockheed C-130's for delivery by mid-1976. (Informed sources indicate a substantial purchase of jet fighters is in the offing.) Most of its fleet is maintained at Lagos and Kaduna airports, where it avails itself of civilian facilities already in place.

The Ministry of Defense controls a number of small airstrips and occupies Makurdi Airport jointly with the Ministry of Civil Aviation.

Although its facilities are spartan compared with those of the commercial air transport system, the Ministry of Defense can be expected to provide a small market for navigational aids, ground-air communications equipment, aircraft maintenance equipment, simple test equipment, and certain categories of ground support equipment.

Aviation Training

Nigerian Civil Aviation Training Center

The modern, Civil Aviation Training Center at Zaria, North-Central State is a significant customer for U.S. aviation and training equipment. Established under ICAO (International Civil Aviation Organization) auspices, the school trains some 130 Nigerian and other African students each year in ATS communications, aircraft maintenance, radio maintenance, and single and multi-engine flying. Courses begin at the most fundamental level, without training prerequisites; in fact, some entering flight trainees have never driven cars.

The flying school, which has enrolled 20-24 students each year, will double its size in 1976; four more Cessna 172's and two Piper Aztecs are being added to the training fleet in 1975.

The Training Center uses four Link trainers (one GAT-II and three of the single-engine type) originally purchased by ICAO. The center is shopping for a jet flight simulator, but as of June 1975, it was not yet definite whether a general or type trainer would be bought.

Another major purchase will be an airport surveillance radar (ASR) simulator for the ATS school. So far, only Redifon and Solartron (both U.K.) equipment specifications have been received by Center management. But Center Principal Bandele is interested in comparing these specifications with those of U.S. equipment. The selection of ASR by the Ministry of Civil Aviation for the Nigerian airport expansion program could well influence the choice of simulation equipment for the Training Center. (The Ministry's Principal Signals Officer is responsible for Center procurement of electronic equipment.)

The radio maintenance course begins on a Philco breadboard system and progresses to hands-on maintenance of Redifon ISB communications equipment and nondirectional beacons. Additional training in VOR/DME and ILS is in prospect.

The Civil Aviation Center is among those activities for which Third Plan budget estimates have proven conservative. Actual 1975/76 equip-

1. Operating data require 10-11 months for compilation.

ment expenditures will be in the \$2-3 million range rather than the \$660,000 shown in the Third Plan.

The Training Center is justifiably proud of the quality of its program; aviation operators employing Zaria-trained pilots and mechanics have commented favorably on the caliber of their training.

In procurement as in training, the Center will continue to make deliberate, carefully considered selections. Therefore, potential suppliers should offer a high order of technical representation and service.

Flying Clubs

There are two flying clubs near Lagos—Aeroclub of Nigeria and the Lagos Flying Club—both based at Kirikiri Airstrip. Their level of activity is reflected in the roughly 18,000 aircraft operations² recorded at the field over the July 1973-June 1974 period.

Supplemental Carriers

There are a half dozen charter operators in Nigeria primarily serving oil companies and government agencies and providing some FBO (fixed-base operator) services to general aviation.

Oilfield activity probably accounts for 95% of the helicopter flying time logged in Nigeria, and this activity has leveled off as world petroleum demand eased in 1975.

Some of the more prominent charter companies are profiled below.

Aero Contractors of Nigeria Ltd.—One of the leading supplemental carriers in Nigeria, Aero Contractors is a subsidiary of Schreiner Airways (headquartered in the Hague) and is now 49% owned by Lagos business magnate Chief Michael Ibru.

Beginning in 1967 with a single Aztec, Aero Contractors has expanded its fleet to 10 fixed-wing aircraft—3 added in mid-1975—and 11 helicopters. The fleet breaks down as follows:

Piper Aztec	3
Piper Navajo	7
Alouette II	2
Alouette III	8
Puma	1

The fixed-wing aircraft alone logged roughly 9,000 hours in 1974. The firm plans to further expand its primarily passenger operation to include short-haul freight and will purchase a

Twin Otter or a Short Skyvan in late 1975 or early 1976. The two Aztec As will be phased out by early 1976. Aero Contractors foresees its overall business continuing to grow about 20% annually over the next several years.

Most clients for Aero Contractors' charter service are the oil companies and oilfield service firms operating in Nigeria. All of the helicopters are on fixed contract to petroleum producers: Agip, Ashland Oil, Japan Petroleum Company, Deminex, and Elf. Drilling and producing companies also provide most of the passengers for the fixed-wing charter services operated by Aero Contractors between Lagos, Warri and Port Harcourt, although all parts of Nigeria are served under the firm's country-wide operating permit. Aero Contractors also operates and maintains the National Electric Power Authority's Alouette II, used for line inspection, and Chief Ibru's Britten-Norman Islander.

Aero Contractors employs 7 foreign mechanics and 32 Nigerians at its main base at Ikeja Airport in Lagos. The firm uses 11 pilots in its operations around the country. In Warri, Aero Contractors owns the only airfield, an asphalt-paved strip equipped only with a nondirectional beacon.

Flying each fixed-wing aircraft 120-150 hours per month, mostly in short hops, Aero Contractors is a particularly good customer for tires, sparkplugs, and other periodic replacement parts and supplies. For example each plane gets new tires every 3-4 weeks.

Because its new Navajoes were ordered equipped with Bendix radar, Aero Contractors is about to set up a complete radar test bench and build a hangar extension solely to accommodate the expanded radio shop. The firm also has been appointed Nigerian distributor for Narco Avionics. These new service capabilities are likely to influence other operators' selection of avionics for light aircraft.

Pan African Airlines.—American-owned Pan African, the Nigerian Cessna representative, operates a fleet of 10 Bell helicopters and 4 fixed wing aircraft in addition to a Cessna 310 and a helicopter owned by the Nigerian Police Force. The fleet breaks down as follows:

Cessna 402	3
DC-6	1
Bell 206B	5
Bell 47G-4A	3
Bell 47J-2A	2

All the helicopters are under contract to Gulf Oil and are operated from its base at Escravos; one of the Cessnas also is committed to Gulf. The other Cessnas are used in an Air Togo feeder service from Lome which meets Lufthansa flights at Lagos. The DC-6 is used principally by a U.S. administrative unit serving American Foreign Service posts throughout West Africa.

2. Shown as 6,000 take-offs and 12,000 landings, suggesting a large proportion of touch-and-go's.

Bristow Helicopters.—The Nigerian outpost of Bristow Helicopters, a British company also active in other oil-producing countries, works exclusively for Shell. Eleven helicopters (Wessex, Whirlwind, and Bell 206B Jet Rangers) operate from Warri, Port Harcourt, and Eket; four Islanders shuttle between Lagos, Warri (using the Aero Contractors field), and Port Harcourt. The Bristow aircraft each average about 100 hours per month.

Other Operators.—The three other charter companies based in Nigeria are Delta Air Charters Tradewings (Nigeria) Ltd., and Arax Airlines (two DC-3s). A branch of Delta Air Charters, Aeronautical Services West Africa (ASWA) Ltd., has the Piper dealership for Nigeria.

General Aviation

Although general aviation is still in its infancy, there are already indications of rapid growth in the years ahead. Many Nigerian and foreign businessmen find their operations require a higher degree of mobility than is possible with Nigeria Airways domestic services. Construction companies, in particular, have found a need for corporate aircraft, and two American building firms each are planning to commit a *second* plane to Nigerian operations.

Agricultural aviation can be expected to develop rapidly as Federal and State programs introduce larger-scale cultivation. It is reported that one State project to take place in 1975 or 1976 will involve the importation of six Grumman Ag Cats.

Appendix 9.2 shows the Nigerian civil aircraft register as of December 31, 1974. The following list includes only those 1975 additions which the Commerce Survey Team learned during field interviews and probably represents only a fraction of the aircraft to be added during the year:

Beech King Air	1
Cessna 172	4
Cessna 310	1
deHavilland Twin Otter	1
Fokker F-28	
(Nigeria Airways)	1
Grumman Ag Cat	3
Mitsubishi MU-2	1
Piper Aztec E	2
Piper Navajo	3

COMPETITION

The most significant factor in competition for Nigeria's growing aviation equipment business is presence. American firms appear to have

succeeded most in products for which they have established sales and service representation in Nigeria. And while dedicated selling is no guarantee of sales (witness the Nigeria Airways selection of F-28's over Boeing 737's in recent procurement), sales are unlikely if tangible opportunities are not pursued.

The project manager for Nigeria's airport development program asserts that U.S. companies were invited to prequalify for the airfield lighting tenders discussed earlier, but none followed through. Of several American manufacturers contacted directly for tenders on the Kano and Enugu ILS systems, only one bid.

Import market shares are not a reliable guide to future sourcing trends for aviation equipment, because of the sporadic nature of Nigerian purchasing. For example, official Nigerian statistics credit the United States with 71% (\$2.1 million) of the country's 1974 imports of transceivers; the 1973 share was 3% (\$18,000). Total radio navigational aid imports increased more than ten times from 1973 to 1974, from \$129,000 to \$1.3 million; the Dutch share went from 1% to 57%.

More important is the way competing suppliers approach the Nigerian market. In communications equipment and nav aids, Pye and Redifon of the United Kingdom are well represented by established agencies. German ITT subsidiary Standard Lorenz has been attentive to the market, selling ILS and VOR equipment to the Civil Aviation Ministry. This company is likely to be a strong contender in future competition. Italy's Face supplied Nigeria's first DME (Ikeja Airport).

As procurement progresses, previous suppliers may gain a stronger competitive position because of the tendency to standardize, but Nigeria's still limited complement of nav aids is a mixture. All tenders responsive to specifications and to service and delivery requirements can be expected to be distinguished on the basis of price.

Some American firms have recently taken a more active interest in Nigeria. Texas Instruments (TI) and Grumman are now represented. Because TI is producing ASR for the U.S. Federal Aviation Administration, it appears well positioned to fill the Nigerian requirement for five installations, for which specifications were expected in September 1975. Wilcox bid on the ILS for Kano and Enugu. Still, European manufacturers account for most of the sales engineers seen in the corridors of the Ministry of Civil Aviation.

The outlook for sales of aircraft is mixed. Nigeria Airways is noncommittal about future purchases. The seven F-28's obtained for domestic service fulfill the airline's foreseeable requirements. By the time additional planes are needed, service comparisons between the F-28 and 737 probably will weigh heavily in the competition.

For long-haul jets, any competitive assessment apparently would have to await a more precise definition of Nigeria Airways operating requirements. By 1978, Nigerian international airports will accommodate the heaviest transports, but load factors suggest these would operate economically only during the 3 or 4 peak travel months and possibly on pilgrimage flights.

American manufacturers dominate the Nigerian market for light, fixed-wing aircraft, as the registration figures illustrate (Appendix 9.2).

Aerospatiale and Bell dominate the helicopter market. The Commerce Survey team detected some interest in the Sikorsky line (among Alouette users), but no immediate sales opportunities.

MARKETING APPROACHES

There are two reasons why contenders for government business should send well-qualified technical personnel to Nigeria. First, most successful suppliers have recognized the need for frequent personal contact with the key procurement decision-makers. It may be necessary to make several personal visits to be regarded as a serious, reliable source of supply. Nigerians tend to be suspicious of high-pressure salesmen who appear to be trying for a quick killing. A good marketing effort would combine fairly frequent personal visits by the manufacturer's representative with appointment of a well-connected Nigerian agent for sustained contact with the purchasers. (However, Nigeria has no statutory requirement for dealing through local agents.)

The second reason is even more compelling: the Nigerian operating environment must be examined first-hand to enable preparation of bids that are responsive to Nigerian needs. Vendors of communications equipment are encouraged to conduct their own site surveys in addition to those performed by the consultant, because it is the supplier who will be responsible for satisfactory operation of the installed system.

Just as important is the need to consider other operating conditions and maintenance capabilities. Nigerian aviation is progressing faster than most other infrastructure. Electric supply voltage and frequency fluctuate more than much precision equipment will tolerate. That systems should be foolproof suggests automation, but automatic and foolproof are not the same in Nigeria, and automatic units should be manually operable. Maintenance simplicity also is important.

For procurement by the Ministry of Civil Aviation, NACO and Telcom Inc., the two consultants, play a key role. In the case of most nav aids and ground-air communications equipment, Telcom prepares detailed specifications for open international tender. All known producers of the equipment are normally invited to bid without prequalification. In considering specifications and possible suppliers, the Principal Signals Officer refers to a product line library of manufacturers' technical data; contributions of product literature from any potential supplier are welcomed. (Addresses for Nigerian aviation clients are listed in Appendix 9.1).

For most of the equipment falling within the responsibility of NACO, such as air terminal systems, bids also are accepted under open international tender according to the consultant's specifications and the prequalification procedure is not used (except in the case of airport lighting, for which it has already taken place).

Bids are reviewed first by the consultants, who make their recommendations to the Ministry of Civil Aviation. In the case of major purchases, the contract award might also have to be approved by the Ministry of Economic Development and the Federal Executive Council.

Nigeria Airways does not employ purchasing consultants as such, but its procurement decisions follow similar channels of approval, with the additional stage of the Corporation Standing Tender Board, from which routine approval usually can be expected.

The crucial considerations in most procurement decisions, particularly in the field of aviation electronics, appear to be delivery time, after-sales service, and provisions for training Nigerian operators. On-site training is much preferred to training courses conducted abroad.

The charter companies that are subsidiaries or agents of foreign firms do some of their procurement through their principals; for example, the final decision on a new aircraft for Aero Contractors would be made in The Hague.

Replacement and parts service is a vital element of marketing to Nigerian aircraft operators. One aircraft owner was grounded for months due to a bad ADF receiver—original equipment in his newly delivered, American-made plane. (ADF is essential since Nigeria has few operational VOR's and vast stretches of flat, undifferentiated terrain.) Whether the avionics manufacturer or the airframe manufacturer should make the replacement should be sorted out quickly on the U.S. end; failure to do so damages the reputation of both.

Appendix 9.1 — Nigerian customers for aviation equipment

Federal Government

Federal Ministry of Civil Aviation
Ministry of Transport
Old Secretariat Building (New Wing)
Marina
Lagos, Nigeria

Attention: Permanent Secretary
Telephone: 52120

Telcom, Inc.
c/o Permanent Secretary
Federal Ministry of Civil Aviation
Ministry of Transport
Old Secretariat Building (New Wing)
Marina
Lagos, Nigeria
Attention: Principal Signals Officer
Telephone: 52120
(Consultants to Ministry of Civil Aviation for navigational aids and communications facilities)

Netherlands Airport Consultants (NACO)
Airport Road
Lagos Airport
P.M.B. 1143
Ikeja, Lagos State, Nigeria
H.P. Van Piggelen
Telephone: 31287
(Consultants to Ministry of Civil Aviation for airport earthworks, buildings, and pavements)

Nigeria Airways Limited
Airways House
Ikeja, Lagos State, Nigeria
Telephone: 31031
Federal Ministry of Defense
Republic Building
Marina
Lagos, Nigeria
Attention: Permanent Secretary
Telephone: 50520

Aviation Training

Civil Aviation Training Center
Aerodrome
P.M.B. 1031
Zaria, North Central State, Nigeria
Attention: Principal
Telephone: 2653

Lagos Flying Club
Aerodrome, Kirikiri Road
Apapa, Lagos State, Nigeria
Attention: Club Secretary
Telephone: 48005

Aeroclub of Nigeria
P.O. Box 392
Apapa, Lagos State, Nigeria
Attention: Club Secretary

Charter Operators

Aero Contractors Company of Nigeria Limited
Western House
P.O. Box 2519
Lagos, Nigeria
Telephone: 55226

Pan African Airlines (Nigeria) Limited
P.M.B. 1054
Ikeja, Lagos State, Nigeria
Telephone: 33798

Bristow Helicopters (Nigeria) Limited
Ikeja Airport
Ikeja, Lagos State, Nigeria
Telephone: 31070

Delta Air Charters
Western House
P.O. Box 3606
Lagos, Nigeria
Telephone: 20057

Tradewings (Nigeria) Limited
Western House
P.O. Box 3606
Lagos, Nigeria
Telephone: 20057

Arax Airlines Limited
47 Marina
8th Floor
P.O. Box 2310
Lagos, Nigeria
Telephone: 53875

Appendix 9.2 — Nigerian civil aircraft register as of December 31, 1974

Model	Number
F-27	5
F-28	3
B-707	2
B-737	2
PA23-250	16
PA23-150	1
PA 240	1
PA 31	5
Piper turbo	1
Chipmunk	3
DHC-3 Otter	3
HS 125	1
DC-3	2
DC-4	1
DC-6	1
Westland	6
Wessex	2
Alouette	14
Bell	13
Beagle B206S	1
Beechcraft	2
Cessna 150	12
Cessna 310	3
Cessna 402B	2
Cessna 185	3
Cessna 172	3
Cessna 206	1
Cessna 337	1
Cessna 180	1
Agusta Bell 206	2
Auster J. 5G	2
Grumman G44	1
Islander BN2A	4
Fournier RF5	1

Source: Nigerian Ministry of Civil Aviation, Lagos.

Chapter 10

COMMERCIAL ROAD TRANSPORTATION

HIGHLIGHTS

Annual sales of commercial vehicles are expected to more than double by 1980 as Nigeria's economic growth and highway system development boost demand for road transport services. Because the road network is improving faster than other surface transport facilities, commercial vehicles will capture an increasing share of the country's transport business. Motor vehicles were used to move over 80% of all Nigerian commercial and passenger traffic in 1974. Total sales of new commercial vehicles in that year alone were \$174.2 million and are predicted to exceed \$370 million by 1980.

It is expected that 20–25,000 new vehicles will be sold annually during the 1975–80 Third Plan period. Small trucks (under 3 tons) will make up 50% of the estimated 175,000 commercial vehicles which will be on the road in 1980, while large cargo trucks and commercial buses will account for 31% and 19%, respectively.

In the first 3 years of the Third Plan period virtually all of the vehicles, spare parts, and related equipment needed to meet Nigerian demands will have to be imported. While European and Japanese suppliers are likely to maintain their dominant share of the market, American firms can expect to increase their sales—particularly in the heavy duty truck and bus sectors—if an active program of trade promotion and merchandising is followed.

Nigerian Fiat, British Leyland, and Mercedes truck assembly plants are expected to be fully operational by 1979–80; however, trade sources anticipate that these firms will be able to supply only about 50% of the market requirements during the remainder of the Third Plan.

SECTOR ANALYSIS

Private Industry

The road transport industry is characterized by diffusion of ownership and small firm size. The reasons for this situation include free market entry (no common carrier regulation), small capital requirements, lack of specialization in the transport market, and high-risk/ high-profit situations.

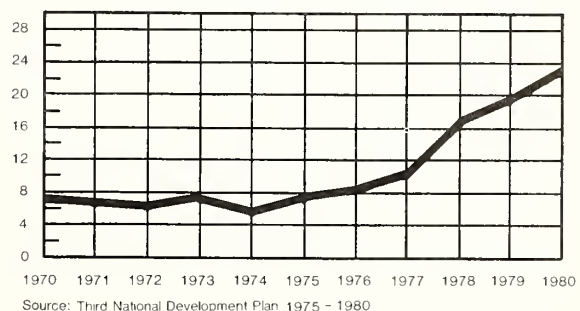
Larger, more specialized firms, often working on long-term contracts and moving products such as petroleum, refrigerated goods, steel, and construction equipment requiring special vehicles, have begun to appear in Nigeria. Foreign entrepreneurs, often long-term residents of Nigeria, controlled most of the larger cargo and passenger transport companies in the past; however, since the Enterprises Promotion Decree of 1972, the transport of goods (except petroleum) and passengers by road has been reserved exclusively for Nigerian citizens.

The average size of firms engaged in the transport business has increased significantly in recent years. For example, the Omole Transport fleet, used for contract hauling, has doubled to 200 vehicles in the last 3 years. There are 200 drivers and a similar number of apprentices and mechanics in the contractor's large, well-operated workshop. The company has its own cranes and low-loaders for moving industrial machinery.

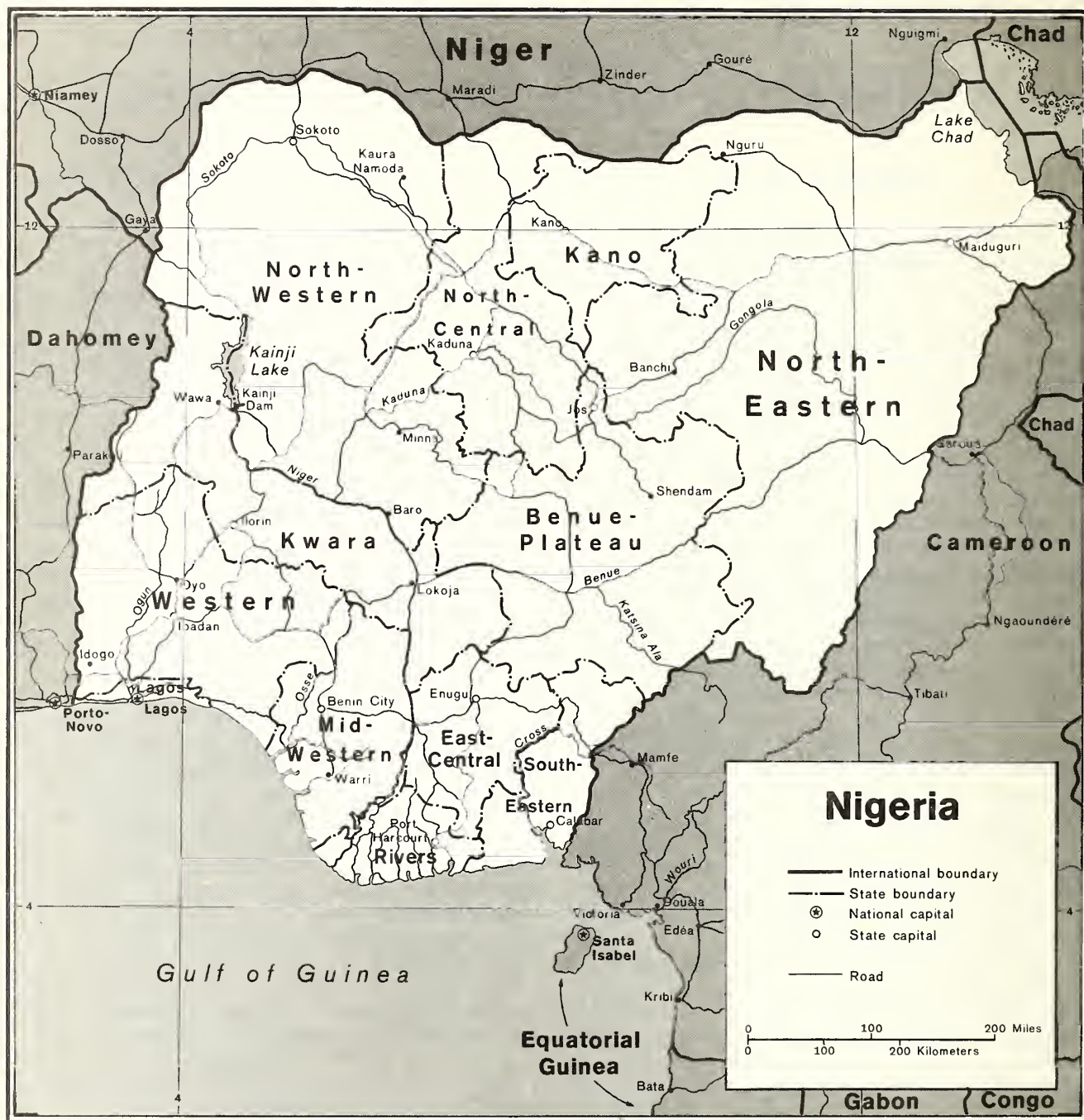
In the near absence of any regulations concerning routes or rates, vans and trucks may ply wherever the business takes them, carrying whatever goods or passengers are available at freely negotiated rates. In practice, there is some natural specialization with regard to local or long-distance markets, particular types of commodities, routes, and clients. In addition, many private bus lines will only operate within a given State or region.

Over the next 4 years the commercial vehicle industry will demand all types of vehicles, and total sales should reach \$371.9 million by 1980 (see table 10.1). Especially good sales

FIGURE 10.1—Commercial vehicle assembly
1970–1980 (in thousands of units)



MAP 10.1



opportunities exist for heavy-duty trucks (over 10 tons), small paneled vans, mini-buses, and specialized trucks such as dump trucks (called "tippers," as in Britain).

State Governments

Most of Nigeria's 12 State Governments have set up or are in the process of establishing state transportation services. Some States operate only bus lines while others provide cargo service as well. The bus lines generally operate beyond the boundaries of their home States. Virtually all state bus companies have terminals in Lagos. Two brief profiles of government-operated transport services follow:

Lagos City Transport Service

The Lagos City Transport Service (LCT), owned by the Lagos State Government, operates the largest number of buses within Nigeria's capital city. Managed by the London-based United City Transport Limited, LCT operates a fleet of

430 buses throughout Lagos and its suburbs. In 1975 the fleet consisted of:

Scania (Sweden) – second-hand and out of service	100
Leyland Worldmaster	100
British Leyland – on order	100
Mercedes (Germany)	68
Other British Leyland vehicles	62

Approximately 100 buses will be purchased each year on a tender basis during the Third Plan period (1975–1980) through United City's London office.

Midwest Line and Armel's Transport Limited

This interstate transport company was established in November 1970 provide cheap, comfortable and efficient transport service to the general public. It has achieved outstanding success in meeting this goal, and it is considered the model for several other state transport companies. Mid-West Line has a sizable fleet of buses, some of which go as far north as Kano and Maiduguri. The company employs over 1, 000 persons.

Table 10.1.—Nigerian commercial vehicle imports, 1972–80
(values in millions of U.S. dollars)¹

SITC	1972	1973	1974	1975	1976	1977	1978	1979	1980
732.16 Dual purpose passenger motor vehicles									
Number	3, 726	6, 839	6, 419	7, 100	8, 100	9, 300	10, 600	12, 300	14, 100
Value	11.5	24.6	27.0	29.7	33.3	37.9	43.6	50.1	57.6
732.20 Buses									
Number	1, 291	1, 410	1, 981	2, 200	2, 400	2, 800	3, 200	3, 700	4, 200
Value	10.4	9.7	15.3	16.8	18.9	21.5	24.7	28.4	32.7
732.31 Trucks under 3 tons									
Number	3, 458	5, 175	4, 012	4, 400	5, 000	5, 600	6, 500	7, 500	8, 600
Value	9.6	17.7	15.7	17.2	19.3	22.0	25.3	29.1	33.5
732.32 Trucks over 3 tons									
Number	3, 877	5, 137	3, 963	4, 400	4, 900	5, 500	6, 300	7, 200	8, 300
Value	21.6	33.0	32.9	36.2	60.5	46.2	53.1	61.1	70.3
732.40 Special purpose trucks and vans									
Number	2, 387	3, 126	2, 351	2, 600	2, 900	3, 300	3, 800	4, 400	5, 000
Value	11.6	12.3	12.8	14.1	15.8	18.0	20.7	23.8	27.4
732.50 Tractors for road tractor trailer combination									
Number	208	155	356	400	400	500	600	700	800
Value	1.9	2.8	5.0	5.5	6.1	7.0	8.0	9.2	10.6
732.72 Chassis of trucks listed in 732.31–32									
Number	2, 318	2, 145	2, 120	2, 300	2, 600	3, 000	3, 400	4, 000	4, 600
Value	15.2	17.7	17.4	19.1	21.4	24.4	28.1	32.3	37.1
732.80 Bodies, chassis, frames and other parts of motor vehicles									
Number	15, 300	15, 740	12, 128	13, 300	15, 000	17, 000	19, 600	22, 500	25, 900
Value	30.6	37.5	48.1	52.9	59.3	67.6	77.7	89.3	102.7

1. Exchange rates used: 1972–73 ₦1 = \$1.52, 1974 ₦1 = \$1.629, 1975–80 ₦1 = \$1.645.

Source: Federal Office of Statistics, Trade Summaries for 1972, 1973, and 1974. 1975 to 1980 figures are Commerce Survey Team projections.

*Table 10.2.—Market shares of
commercial vehicle imports, 1972–74
(by percentage share of total market value)*

<i>SITC</i>	1972	1973	1974
<i>732.16 Dual purpose passenger motor vehicles</i>			
United Kingdom	63	34	33
France	14	22	20
West Germany	11	21	12
Japan	8	15	22
United States .....	.1	.4	2
<i>732.20 Buses</i>			
France	—	1	23
West Germany	33	35	15
United Kingdom	35	28	11
Japan	16	13	10
Austria	7	20	15
Brazil	—	.5	15
United States .....	.1	.1	5
<i>732.31 Trucks and lorries, under 3 tons</i>			
West Germany	5	7	3
United Kingdom	53	54	31
France	14	25	40
Japan	14	9	9
Austria	2	4	9
United States .....	.6	.1	.1
<i>732.32 Trucks and lorries, over 3 tons</i>			
West Germany	35	41	55
United Kingdom	36	35	19
Italy	12	9	11
Japan	6	5	3
United States	5	2	1
<i>732.40 Special purpose lorries, trucks and vans whether assembled or not</i>			
West Germany	48	40	37
United Kingdom	38	44	42
United States	4	1	1
<i>732.50 Tractors for road tractor trailer combinations</i>			
United Kingdom	31	22	23
Italy	35	16	14
West Germany	8	8	16
France	15	11	12
United States	9	26	30
<i>732.72 Chassis of trucks and lorries listed in 732.31–32, with engines mounted</i>			
West Germany	33	40	27
United Kingdom	23	18	24
Austria	27	7	13
Italy	12	23	25
United States	—	—	1
<i>732.80 Bodies, chassis, frames and other parts of motor vehicles</i>			
West Germany	30	33	33
France	18	18	18
Italy	8	8	9
United Kingdom	30	27	27
Japan	4	6	6
United States	4	2	3

Source: Nigerian Trade Summaries – 1972, 1973, and 1974.

The firm is owned by the Government of Midwest State, and its head office is in Benin City, the state capital. It has branch offices in Lagos, Western, Kano, North-Central and Rivers States. Up to now, Midwest Line has used Hino, Mercedes Benz, and Saviem buses. However, company officials are interested in American buses, provided price, delivery and servicing arrangements can be satisfactorily worked out.

Other State-run transport lines which have expressed similar interest in U.S.-made equipment include those of South-Eastern State, Rivers State, North-Eastern State and Benue-Plateau State.

Trade sources estimate that public and private bus companies will demand at least 1,000 new buses yearly at least through 1980.

COMPETITION

European and Japanese manufacturers of commercial vehicles are the principal third-country suppliers (see table 10.2). By 1978, American suppliers will also face competition from domestically assembled vehicles. Table 10.3 shows that the United Kingdom, West Germany and Japan are the main sources of trucks and buses now in Nigeria.

Competition between firms has been intense in recent years, with no company capturing over 25% of the market in any subsector. In 1975, however, the Nigerian Government awarded contracts to three of the most important suppliers of commercial vehicles—British Leyland, Mercedes, and Fiat—to build commercial vehicle assembly plants in Ibadan, Enugu, and Kano, respectively.

Initially the plants will assemble only imported CKD (completely knocked-down) or SKD (semi-knocked-down) components. Gradually they will develop manufacturing capability. For example, British Leyland plant officials anticipate 100% manufacturing capability by 1991.

Production in all three plants is expected to begin in 1977 or 1978. When fully operational (1979 or 1980), the three plants will be capable of supplying 50% of Nigeria's commercial vehicle needs. These companies undoubtedly will be protected by government tariffs; as were the recently established Peugeot and Volkswagen passenger vehicle assembly plants.

Despite these disadvantages, American-made commercial vehicles can be sold in Nigeria, particularly large, heavy-duty trucks and buses. For example, the few Mack trucks currently operating in Nigeria have an excellent reputation. Many industry executives indicated that more American trucks could be sold if spare parts and

Table 10.3.—Selected new commercial vehicle registration statistics – 1974

Make	Up to 2 tons	2–5 tons	5–10 tons	10 tons	Buses	Grand total
Austin (United Kingdom)	238	486	139	—	—	863
Bedford (United Kingdom)	—	661	438	—	114	533
Datsun (Japan)	502	11	—	—	—	513
Fiat (Italy)	4	12	50	318	2	386
Ford (United Kingdom)	1, 621	14	289	12	—	1, 936
Isuzur (Japan)	490	—	—	—	—	490
Land Rover (United Kingdom)	671	—	—	—	—	671
M.A.N. (Germany)	—	—	100	341	—	441
M.A.Z. (Germany)	—	—	133	37	—	170
Mercedes (Germany)	33	38	1, 824	278	224	2, 397
Morris (United Kingdom)	177	398	64	—	—	639
Peugeot (France)	3, 711	—	—	—	—	3, 711
Scania (Sweden)	—	—	—	43	—	43
Steyr	9	10	345	31	17	412
Toyota (Japan)	584	79	165	—	155	983
Volkswagen (Germany)	2, 457	—	—	—	—	2, 457

Source: Lagos Chamber of Commerce and Industry.

trained mechanics were readily available.

There are fewer American-made buses than trucks in Nigeria. However, many bus line officials feel that more American made buses could be sold if local servicing were made available. Trade sources believe American buses, unlike certain European and Japanese vehicles, would have little difficulty standing up to tropical conditions.

mount an aggressive sales campaign, because existing suppliers are well-entrenched in Nigeria. An American company should therefore reach a firm understanding with its agent about how the agent will promote its product.

Appendix 10.1.—Principal distributors and their product lines

Niger Motors – Bedford, Vaurshall
 Incar (Nigeria) Limited – Fiat
 Rutam Limited – Mazda, BMW
 Nigeria General Motors Limited – Daihatsu, Fiat
 W.A.T.E.C.O. Limited – MAZ, GAZ
 Intra (Nigeria) Limited – Datsun
 Mandilas Limited – V.W., Audi
 U.T.C. – M.A.N., Opel
 Leventis – Mercedes-Benz, Renault
 L.B. Holdings Limited – Subaru
 Bewac Limited – Leyland
 Nigerian Technical Company Limited – Citroen, Steyr
 J. Allen and Company Limited – Ford
 Phoenix Motors Limited – Sunbeam, Galant Daf
 S.C.O.A. – Peugeot
 C.F.A.O. – Morris, Nissan
 R.T. Briscoe – Volvo, Toyota

MARKETING APPROACHES

The best method of selling any kind of service or equipment in the commercial vehicle sector is to follow the practices of the successful European and Japanese companies. American manufacturers should appoint reliable agents/distributors that can arrange local credit for prospective buyers, maintain large parts inventories, and provide service. (Appendix 10.1 lists major distributors and their product lines.) A company chosen for this task should therefore be a large, well-capitalized firm. A representative should also be willing to

Chapter 11 RAILROADS

HIGHLIGHTS

The Nigerian Government will invest an impressive \$1.5 billion in the Nigerian railroad system during the 1975–80 period. Of this total, \$1.1 billion will be spent on one of the most ambitious projects planned by the Federal Government—conversion of the entire rail system from narrow gauge (3 feet, 6 inches) to standard gauge (4 feet, 8.5 inches). Purchases for this project will include locomotives (mainline and shunting), passenger and freight cars, new track, and communications and signalling equipment. The Government will also spend \$90.2 million on equipment for the existing narrow gauge track. Projected purchases include mainline and shunting locomotives, freight cars, passenger coaches, and communications equipment.

SECTOR ANALYSIS

The Nigerian rail system, the fifth largest in Africa, had 2,680 miles of track in 1974. The two main north–south lines—Lagos to Kano (702 miles) and Port Harcourt to Maiduguri (897 miles)—are connected by a major east–west line which runs from Kaduna to Kafandon, about 60 miles southwest of Jos (see Map 11.1). There are also five branch lines.

North–south lines account for most of the track because of the direction of most Nigerian commodity traffic. In general, agricultural produce and mineral resources are brought from the north to the southern ports, while imported goods, machinery, and building materials move from the ports to the northern commercial centers.

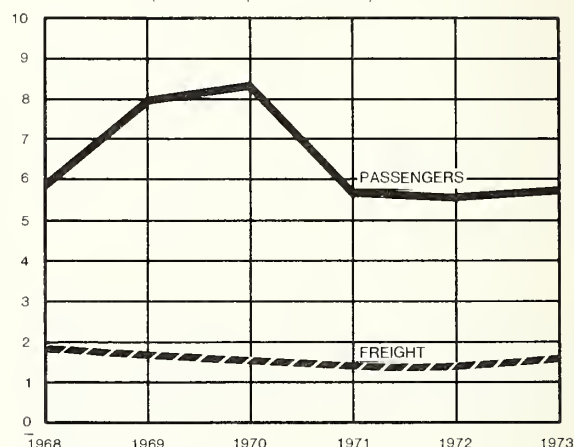
According to a study prepared in 1972 by CANAC Consultante Ltd., a Canadian consulting firm, the Nigerian Railway Corporation (NRC) generates nearly 85% of its revenues from the transport of goods and equipment, 12.5% from passenger operation, and 3% from miscellaneous sources. The CANAC study forecasts that freight traffic will account for an even greater percentage of total revenues in the latter half of the 1970's.

The Nigerian Railway Corporation

The Nigerian Railway Corporation (NRC), a semi-autonomous statutory corporation of the Ministry of Transport, is the only authorized

FIGURE 11.1—Railway passenger and freight traffic 1968–1973

(in millions of persons and tons)



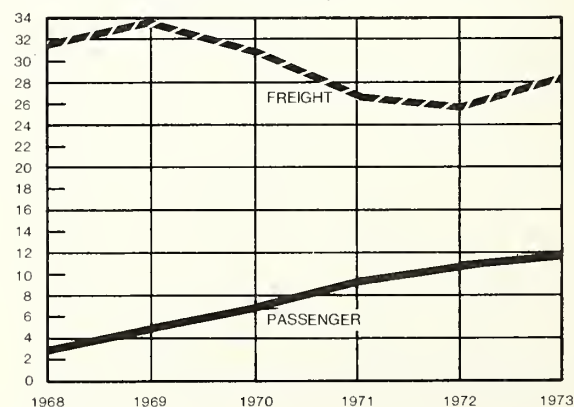
Source: Nigerian Railway Corporation

operator of railroads in Nigeria (see Appendix 11.1 for more detail). Overseeing its activities is a corporate board consisting of a chairman and 12 members drawn from a broad range of economic and social interests. The management is headquartered at the Ebute Metta terminal in Lagos, and there are district offices at Ibadan, Zaria, Bauchi, and Enugu.

A Government Inspector of Railroads (within the Ministry of Transport) is responsible for insuring adherence to safety standards and for investigating accidents. In addition, NRC is subject to control from two other statutory organizations: the Statutory Corporations Service Commission (in matters of personnel and policy)

FIGURE 11.2—Railway passenger and freight revenues 1968–1973

(in millions of U.S. dollars)



Source: Nigerian Railway Corporation

MAP 11.1



and the Corporation Standing Tenders Board (for equipment purchases).

For over a decade the Nigerian Railway Corporation has had financial difficulties. Although the Government has invested ever increasing amounts of capital in locomotives, rolling stock, etc., total revenues have continued

to decline. Freight and passenger statistics show the causes of the growing deficit. For example, in 1961-62 the NRC carried 3 million tons of freight, while in 1973-74 that figure had slipped to slightly less than 2 million tons. Similarly, over 11 million people used railroad passenger service in 1961-62, while only about 4.7 million used it

Table 11.1.—Freight and passenger traffic 1962–74

Years ¹	Freight traffic		Passenger traffic	
	Thousands of tons	Millions of ton-miles	Thousands of passengers	Millions of passenger miles
1962	3,003	1,412	11,061	481
1968	1,868	986	6,916	247
1970	1,553	950	8,370	453
1971	1,604	982	8,942	611
1972	1,406	750	6,151	597
1973	1,670	344	5,819	640
1974	1,978	958	4,670	473

1. Years ended March 31.

Source: *Third National Development Plan*.

in 1973–74 (see table 11.1). Operating deficits in the last 10 years have ranged from a low of \$2.2 million (1967–68) to a high of \$37.4 million in 1973–74.

Some factors contributing to NRC's financial problems include declining agricultural output and exports (once a significant portion of total rail traffic), substantial improvement in road transport and other competing transportation services, labor relations problems, and inadequate internal management. These factors led to poor coordination of routes and scheduling and to overall slowness and unreliability of service.

One of the Government's principal objectives during the Third Plan is to improve services and standards so that the railways can once again provide efficient, economical, transportation service.

Planners hope that the conversion to the standard gauge will help reach that goal. In theory, the new rail system should enlarge rail capacity, reduce unit costs, and permit the system to operate at higher speeds with increased reliability, safety, and efficiency.

In addition, NRC officials hope that further revenues and traffic can be generated as Nigerian industry expands. The major source of potential traffic is the planned 1.5-million metric ton steel complex at Ajaokuta, which is located on the Niger river just south of its confluence with the Benue. Railroads will be needed to transport iron ore and other raw materials to the plant site and then move finished products to the rest of the country.

NRC officials also point to other sources of potential traffic: the new Peugeot and Volkswagen automobile assembly plants at Kaduna and Lagos; the new superphosphate fertilizer plant at Kaduna; the cotton mill complex at Funtua; the recent revival of foreign interest in coal from East-Central State; and the gradual development of ship cargo containerization. Furthermore, the crippling drought of the past several years, which cut down drastically on agricultural output in the

north and created a serious problem of empty rail cars on the north-south route, appears to be coming to an end.

EQUIPMENT REQUIREMENTS

The *Third National Development Plan* places great emphasis on the improvement of Nigeria's railway system. Most of this emphasis will be directed toward the track conversion program, which calls for the construction of a new standard-gauge track roughly parallel to the existing narrow-gauge system. The original track will then be converted to standard-gauge, thus avoiding any significant interruption of rail service while construction work is in progress. The actual laying of track is slated to begin in 1978 at the rate of 320 kilometers per year. It will take at least 10 to 15 years to complete the entire project.

The Federal Government is in the process of selecting a foreign consultant to supervise the entire program. The consultant would be expected to advise on design considerations for the new system, on the selection of construction contractors and on the possible electrification of the system at a future date.

The total cost of the track conversion program will be close to \$2.5 billion. Of this amount, almost \$1.1 billion has been earmarked for equipment and construction purchases over the next 5 years. The following list gives a breakdown of planned expenditures:

	Millions of U.S. dollars
Standard-gauge locomotive and rolling stock:	
15 mainline diesel locomotives	9.9
12 diesel shunting locomotives	3.3
100 passenger cars	11.5
1,000 freight cars	32.9
Communications and signalling equipment	39.5
Construction of track, bridges, and related works	791.3

Construction of 5 marshalling yards, main station buildings, and 58 wayside stations	59.2
Construction of 4 new workshops	41.1
Land acquisition	123.4

In order to keep the present system operating, the Nigerian Government will spend over \$90 million on narrow-gauge equipment requirements. Expected purchases include:

	Millions of U.S. dollars
75 mainline diesel locomotives	25.7
20 diesel shunting locomotives	6.6
670 freight cars (300 goods cars, 20 rack cars, 10 refrigerated cars, 3 well cars, 50 flat cars, 32 brake cars, 250 coal cars)	23.0
150 passenger coaches	29.6
Communications equipment	5.3

Locomotive specifications (reportedly written in such a way as to not exclude any major potential suppliers) call for 1,500- to 1,700-horsepower engines capable of hauling gross loads of 850 to 900 tons. One reason for the large procurement of narrow-gauge locomotives stems from the fact that 54 locomotives acquired in recent years from Canada (MLW-Montreal Locomotive Works) have experienced chronic breakdowns. There have also been mechanical difficulties with 140 recently purchased Hitachi passenger cars.

COMPETITION AND MARKETING APPROACHES

U.S. firms can expect strong competition from European, Japanese, and Canadian suppliers (see Appendix 11.2). The Nigerian Railway Corporation has procured equipment from a variety of sources—the mainline diesel locomotives from Canada, 22 diesel shunters from the United Kingdom and 12 light-axle diesel locomotives and 140 passenger coaches from Japan.

In the past, NRC officials have had to base purchase decisions in part on who would offer the “best” terms. For example, the sale of 140 Hitachi coaches was supported by a Japanese Government loan of \$25 million, at 4.5% interest per annum, repayable over 25 years including a

Table 11.2.—Traffic projections

(in millions of metric tons)

Year	Moderate forecast	Optimistic forecast
1975	4.9	6.3
1980	6.2	8.9
1985	8.4	11.3
1990	10.5	14.8

Source: CANAC Consultants 1972 report to the Nigerian Railway Corporation.

grace period of 7 years. However, officials now indicate that they are becoming less concerned about financing arrangements and more concerned with other purchase factors such as product quality and durability. Part of the reason for this shift in thinking is the numerous breakdowns of the Canadian locomotives and the Japanese passenger cars in use in Nigeria. Also, Nigeria's oil revenues have enabled the Government to finance most development purchases internally.

The Corporations Standing Tenders Board (CSTB) and the Federal Executive Council (FEC) must approve contract awards above \$164,500 and \$22,000, respectively. Although FEC and CSTR usually abide by the recommendations of the Railway Corporation, they must review the contracts. The review process inevitably slows down procurement, and suppliers should allow a sufficient bid validity period or be prepared for extension requests.

Appendix 11.1.—Nigerian rail system May 1975

Nigerian Railways Corporation (NRC)

key sales contacts:

*Permanent Secretary
Federal Ministry of Transport
Old Secretariat Building (New Wing)
Marina, Lagos, Nigeria*

*General Manager
National Railway Corporation
Headquarters
Ebute-Metta
Lagos, Nigeria*

Number of employees: approximately 35,000

Union Organization: Nigerian Union of Railwaymen—Federated (NUR-F), composed of several smaller unions and splinter groups; total membership approximately 35,000.

Physical Assets

Route Mileage: 2,178 miles (3,505 km), all single line
Track Mileage: 2,680 miles (4,320 km)
Track Gauge: 3 feet 6 inches (1,607 mm) to be converted to 4 feet 8.5 inches (1,435 mm)
Standard weight of rail: 80 lb, but 50–70 lb rail still exists; 100 lb has been recommended for future construction
Permissible axle loads: according to rail weights, at 40 m.p.h.:
 60 lb (worn) 13 tons
 60 lb (new) 15 tons
 70 lb 17 tons
 80 lb 20 tons

Bridges: steel and concrete; permissible axle load 15 tons

Signalling system: mechanically controlled, double wire operated interlocking, single wire operated interlocking, List and Morse, block instruments operated by key tokens

Communications: station-to-station field telephone system in six networks covering 280 stations; telegraphic links between Ebute Metta (Lagos) and Kutiwenji, Ebute Metta and Jebba, Jebba and Zaria; radio-telephone connecting Ebute Metta with five stations; radio transceiver connecting Ebute Metta with 10 stations

Locomotives (approximate figures May 1, 1975):

Mainline diesel electric	130
Mainline diesel hydraulic	8
Diesel shunters	39
Mainline steam	133
Steam shunters	43

Freight cars (approximate figures March 31, 1973):

Covered cars	3,080
Low and high-sided cars	1,790
Tank cars	630
Cattle cars	250
Brake vans	430
Others	420
Total	6,600

(total number of freight cars on the books as of March 31, 1975, was down to 6,180)

Passenger cars: approximately 440

Principal Mechanical Workshops: Ebute Metta, Enugu, and Zaria.

Traffic (also see table 11.1. and 11.2.)

Major import traffic: hardware, machinery, cement, salt, sugar

Major export traffic: groundnuts (peanuts), groundnut cake, groundnut oil, cocoa, cotton seed, palm kernels

Major internal traffic: farm produce, livestock kola nuts

Future traffic: Hopes are placed on the planned iron and steel complex in Kwara State, the superphosphate fertilizer plant in Kaduna, the petrochemical complex in Warri, the Peugeot assembly plant in Kaduna, the cotton mill complex at Funtua, the renewal of coal exports, and the development of containerization in Nigeria.

Financial Position of the Nigerian Railway System

Total fixed assets (March 31, 1972):

\$192.8 million

Gross revenues and expenditures (in millions of dollars, converted from Naira at ₦=\$1.52)

	1970/71	1971/72
Gross revenue	36.0	33.8
Expenditure plus depreciation	52.5	57.7
Working surplus (or deficit)	(16.5)	(23.9)
Operating rate	148%	170%

(In 1972/73 and 1973/74, operating deficits increased to \$33.1 million and \$35.1 million, respectively.)

Appendix 11.2.—Major NRC purchases of rolling stock

Company	Equipment	Origin
English Electric	Diesel engines, shunting locomotives	U.K.
MAK	Diesel engines	W. Germany
Sulzer	Diesel engines	U.K.
AEI	Diesel engines	U.K.
North British Locomotive	Shunting locomotives	U.K.
Drewry Car Company	Rail cars	U.K.
Hitachi	Rail cars	Japan
Montreal Locomotive Works	Diesel locomotives	Canada

Chapter 12

WATER TRANSPORT

HIGHLIGHTS

The Nigerian Government plans to spend almost \$900 million on improvement and development of the water transport sector under the *Third National Development Plan*. Government officials have allocated \$530 million of this total for major expansion and modernization of Nigeria's port and harbor system. However, with mounting port congestion, new projects are being added to this chapter of the Third Plan and costs will be substantially higher.

To relieve persistent port congestion and inefficiency, 18 new berths will be constructed at four ports for an estimated \$275 million. In addition, a \$66.2 million alternate harbor is being planned for Lagos, the country's major port. Expenditures for the inland waterways system will exceed \$150 million. Equipment needs include navigational aids, barges, tug boats, dredges and car and passenger ferries. Consulting services in the fields of hydrology, mapping, and pollution control will also be in demand. Finally, the Nigerian National Shipping Line is expected to purchase 20 new vessels at a cost of more than \$190 million.

SECTOR ANALYSIS

There are three principal end users in the water transportation sector: the Nigerian Ports Authority (NPA), the Inland Waterways Department (IWD) and the Nigerian National Shipping Line (NNSL). In addition, the Federal Ministry of Transport has a small Maritime Division, and there is a Government-sponsored fishing fleet. An oil tanker fleet is planned (See Chapter 4, Petroleum).

The Nigerian Ports Authority

Established as an autonomous public corporation in 1955, the Nigerian Ports Authority is responsible for the administration and operation of the country's six seaports—Lagos (Apapa), Port Harcourt, Calabar, Warri, Burutu, and Koko. The NPA also monitors the operations of the private Port of Sapele and the various oil terminals run by international petroleum

*Table 12.1.—General cargo volume
at principal Nigerian ports
(in thousands of tons)*

Year	Lagos	Port			Total
		Harcourt	Warri	Calabar	
1970	2,599	102	—	69	2,770
1973	2,891	579	345	80	3,895
1974	3,049	378	267	50	4,104

Source: *Third National Development Plan*.

companies. The Authority provides a number of marine services, including piloting and towing, dredging and lighting maintenance (including lighthouses).

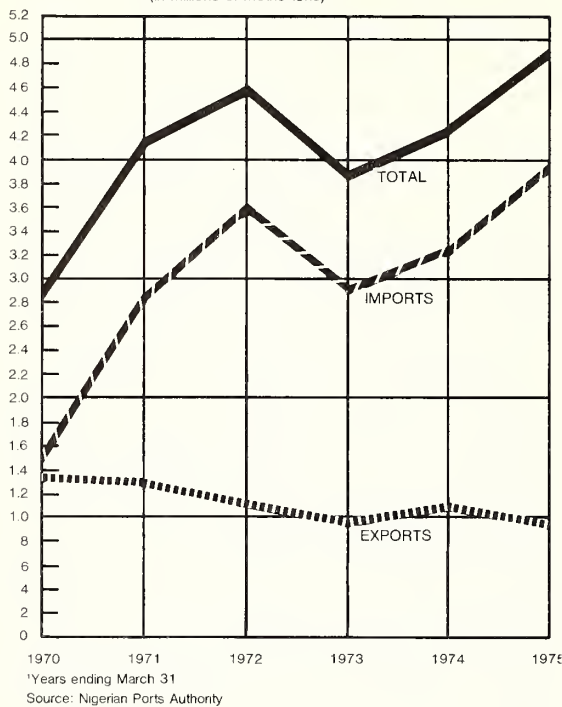
The average annual growth rate of general cargo (excluding petroleum) entering and leaving Nigeria between 1969 and 1973 was slightly over 8%. Since 1973, however, massive earnings from crude oil sales have made Nigeria a most attractive market. Foreign goods have been flooding into Nigeria faster than the ports can accommodate them.

In recent years approximately 75% of all tonnage handled by Nigerian seaports has come through Lagos and about 16% through Port Harcourt, with the other four Authority-operated ports accounting for the remaining 9% (see table 12.1). Due to the massive congestion at Lagos (especially since mid-1973), some traffic destined for Nigeria has been rerouted through Cotonou (Dahomey), Douala (Cameroon), Tema and Takoradi (Ghana), and Lome (Togo). But because these ports are limited by shortages of materials handling equipment and by physical space, Lagos will continue to have to bear the brunt of handling incoming cargo traffic during the latter half of the 1970s.

Efficient operation of the Nigerian port system has been hampered by delays in customs clearance, traffic congestion in port areas, shortages and breakdowns of materials handling equipment, and internal communications problems within the NPA. Another serious problem has been the high incidence of cargo losses from breakage and pilferage.

In the coming years Nigerian seaports will have to process an increasing amount of cargo. Government officials therefore have placed major emphasis on improving the cargo handling capacity of all ports. To achieve this goal, the Government will spend \$529.7 million on port development. Plans call for the construction of

FIGURE 12.1—General cargo handled at Nigerian ports 1970-1975¹
(in millions of metric tons)



additional berthing facilities at Lagos, Port Harcourt, Calabar, Warri, and Koko. Modern bulk-handling facilities also are being considered. Moreover, the Government plans to construct a new ocean terminal for the Lagos area.

Major Projects

The summaries of the approved construction projects below are followed by a discussion of equipment needs.

Lagos/Apapa Wharf Extension.—This extension will be the third and final extension to the existing 18-berth quay. Construction plans call for building six berths (including one container terminal, four transit sheds, and four warehouses), and for dredging approach channels.

The general contract, valued at \$123.4 million, has been awarded to Julius Berger (Nig.) Ltd., but some subcontracts, particularly for mechanical handling equipment (\$8.3 million), have not yet been awarded.

Warri Port Development.—At present there are two berths which can accommodate three oceangoing vessels. Plans call for constructing an additional four berths and providing all ancillary facilities, including an office block. Total expenditure is estimated at \$44.4 million, although the

designs were not yet complete as of mid-1975. Tenders may go out in late 1976.

Calabar Port Development.—NPA plans the construction of a new port for Calabar during the current plan period. As presently envisioned, the project would include the construction of four berths, transit sheds and warehouses, and the purchase of mechanical handling equipment and harbor craft. A group of Norwegian consultants handled the feasibility study, and part of the cost of construction is expected to be financed by the Norwegian Government. As of June 1975, design work was almost completed, with the actual tender for construction scheduled to be let before the end of the year. Project cost was estimated at \$27.1 million.

Port Harcourt Development.—The existing main quay, 1,360 meters in length and capable of berthing seven oceangoing vessels, is considered inadequate. Therefore, during the current plan period construction will begin on the first phase of a new 1,000-meter quay consisting of four berths with ancillary facilities. Design work has not been completed, and there is a possibility that it will be part of the construction tender which will likely go out for bids early in 1976. The total cost of the project is estimated at \$106.9 million, but it is expected that only \$65.8 million will be spent under the Third Plan.

Koko Port Development.—The Third Plan calls for the construction of an additional 300 meters of deep-water berths and another 300 meters of shallow-draft wharf for fishing vessels. Koko has been selected as the base of the Government-sponsored and other deep-sea fishing fleets. (See Chapter 23, Fish). Design engineering has already been completed and construction bids probably will be invited before the end of 1975. The cost of the expansion over the next 5 years is estimated at \$23 million.

New Ocean Terminal.—Due to the persistent congestion and delays which have occurred in recent years at Lagos and Port Harcourt, the Nigerian Government will spend \$65.8 million for the construction of the first stage of an alternative port to Lagos. This phase will cover building at least six berths and ancillary facilities such as road and rail links. The project is in its embryonic stage. The feasibility studies still have to be completed, and the site has not yet been selected, although a location on Badagry Creek some 40 miles west of Lagos is currently favored.

Dockyards Program.—About \$19.7 million will be spent in the next 5 years to improve and expand dockyard facilities. NPA expects to buy most of the equipment directly from known suppliers. However, among the items which may be subject to the tender process are a \$10-million, 4,000-ton drydock for the Niger Delta

port of Burutu and two 2,000-ton slipways for Port Harcourt and Apapa (Lagos).

Petroleum Jetties.—Tentative plans call for replacement of the old jetty at Apapa with a new \$21.4 million petroleum jetty at Atlas Cove, Lagos. There is a possibility that this jetty will not be needed once a pipeline is used to connect Lagos with the new refinery at Warri. Discussions concerning this matter are going on between the NPA and the Ministry of Petroleum and Energy. If they decide to go ahead with the Lagos jetty, a tender probably will go out for competitive bidding in 1976. A second petroleum jetty at Okrika near Port Harcourt, costing an estimated \$16.5 million, will be bid on in 1976. (Chapter 4, Petroleum)

Bonded Warehouse/Container Freight Station at Apapa.—In recent years existing port facilities have been unable to handle the large numbers of arriving cargo containers. A new container berth, part of the current Apapa Wharf Extension project, will be ready for operation in 1977. Plans have also been drawn up for the construction of a bonded warehouse/container freight station outside the main port area to which containers can be conveyed for consignee pick-up. The project, including materials handling equipment is estimated to cost \$8.2 million. Bids were to be invited by late 1975 or early 1976.

NPA Equipment Needs

Mechanical Plant and Handling Equipment.—In addition to the \$23.5 million (estimated collectively) worth of new motor vehicles and materials handling equipment which will be purchased as part of the above projects, the Nigerian Ports Authority will also spend another \$23 million to replace worn equipment still in use.

The following equipment needs have already been identified:

Diesel forklift trucks	138
Electric forklift trucks (standard mast)	10
Container carriers/front loader	8
Freight lifters (30,000 lbs at 48')	36
Mobile cranes (10 tons)	33
Mobile cranes (25 tons)	12
Floating crane (100–150 tons)	1
Industrial tractors	63
Trailers for containers (20 tons)	53
Portainer cranes	1–2
Transtainer cranes	3–4
Mobile crane (35 tons)	1

Dredges and Port Vessels.—The NPA will spend at least \$23 million (and probably more) for dredges and various harbor vessels during the Third Plan. Established equipment needs to date are as follows:

Trailing dredges (by 1978)	1
Tugs	3
Survey launches	2
Pilot cutters	5
Harbor craft	25

In addition, the NPA will purchase an indeterminate number of launches and various kinds of barges and lighters.

Navigational Aids/Communications Equipment.—The NPA will purchase \$6 million worth of radio beacons, harbor buoys, light beacons, and other navigational aids during the Third Plan period. Another \$8 million has been allocated for naval communications equipment. In addition, the Maritime Division of the Federal Ministry of Transport is expected to purchase about \$13.8 million worth of navigation equipment over the next 5 years.

Table 12.2.—Estimated capital for inland waterways program 1975–80¹
(in millions of U.S. dollars)²

Government	Total	1976	1977	1978	1979	1980
Federal	78.2	16.3	20.0	18.4	14.3	9.2
States						
Benue-Plateau	8.3	3.6	3.6	1.0	—	—
East-Central	3.3	.8	1.6	.9	—	—
Kwara	3.6	1.1	1.6	.9	—	—
Lagos	8.2	.2	.2	3.3	3.0	1.6
Mid-Western	19.9	7.2	6.9	4.4	1.0	.3
North-Eastern	3.3	.8	1.6	.9	—	—
North-Western	3.3	.8	1.6	.9	—	—
Rivers	17.3	3.9	1.8	8.4	2.2	1.0
South-East	3.5	1.8	1.0	.5	.3	—
Western	2.0	.2	.8	.5	.5	.1
Total all States	72.7	19.6	20.7	21.7	7.0	3.0
Total all Governments	153.9	35.9	40.7	40.1	21.3	12.2

1. Years ending March 31.

2. Converted from Naira at ₦1=\$1.645.

Source: *Third National Development Plan*.

Inland Waterways

Responsibility for development and maintenance of Nigeria's inland waterways is shared between the Federal and State Governments. The Federal government agency responsible for the management of major inland river routes is the Inland Waterways Department (IWD) of the Federal Ministry of Transport.

The IWD operates patrol services, issues daily navigation bulletins on river conditions, and maintains navigational aids. Also, in conjunction with the Niger Dams Authority (operator of the Kainji Dam), it operates a lock service around the Kainji Dam.

State water transportation programs are located primarily in the southern riverine States. They are mainly concerned with ferry and barge transportation services. In order to pool resources, six States have formed the Central Water Transportation Company, which is headquartered in Onitsha, on the Niger River in East-Central State.

River traffic has declined in recent years because of increased use of trucks and because of low water levels resulting from protracted drought conditions. Nevertheless, \$149.5 million has been allocated in the Third Plan for improving and developing inland waterway systems. This expenditure is almost equally divided between Federal and State Governments.

Major purchases and programs which the IWD will undertake during 1975-80 are: navigational aids including buoys, beacons, kilometer boards (\$3.3 million); 4 wooden launches, 2 motor barges, 2 ferries and 1 houseboat (\$7.8 million); several dockyard development projects, including the purchase of slipways (\$10.6 million); four projects involving the construction of ferry terminals and the purchase of 14 passenger ferries (\$20.2 million); dredging work (\$10 million); and numerous hydrological, mapping, navigational, coastal erosion and pollution survey jobs (\$20.2 million).

State investments in inland water transportation total \$72.7 million. The Central Water Transportation Company will spend an estimated \$20 million. Led by Mid-West State and Rivers State (with combined expenditures of \$37.2 million), the State Governments will concentrate their purchases on ferry and river craft, dredging services (including the purchase of several dredges), and various construction projects (canals, jetties, dockyards, etc.).

The Nigerian National Shipping Line (NNSL)

The Nigerian National Shipping Line, established in 1958, is a government-owned

corporation. The company has liner service to Europe and various Mediterranean ports. It is a member of the Continental West African Conference (COWAC) and United Kingdom West African Conference (UKWAC). The fleet has grown from 13 ships in 1961 to 16 ships in 1974 and now includes a conventional/container cargo ship. Despite the increase in its fleet size, the NNSL carried only 7% of all Nigerian exports and imports in 1974.

The Government has three basic Third Plan objectives for NNSL: (1) to enable the NNSL to carry about 30% of all Nigerian import/export traffic by 1980, (2) to acquire more container vessels, and (3) to investigate the feasibility of expanding trade routes. To achieve these goals, the NNSL has been allocated \$202.9 million. Most of this will be spent on purchasing new vessels—14 representing new fleet capacity and 6 replacing ships to be retired. Of the 20 new vessels, 16 are to be combination conventional/container cargo ships. All 20 ships will have to be purchased abroad.

While NNSL is interested in American-built vessels, the relative high cost of such ships, unfamiliarity with possible sources of supply, and the traditional orientation toward European shipyards, are potential handicaps for American suppliers.

The Government plans for National Oil Marketing Company to buy tankers to transport oil and liquefied natural gas. These requirements are treated in Chapter 4, Petroleum.

COMPETITION AND MARKETING APPROACHES

American manufacturers will face strong competition in seeking to supply the water transport sector. Nigeria has purchased most of its ships, tugs, barges, etc. from the United Kingdom (principal supplier), West Germany, and the Netherlands. Other suppliers include France, Japan, and Belgium. Italy, the United Kingdom, and West Germany are the leading exporters of navigational aids, such as buoys and beacons, to Nigeria. The most important suppliers of materials handling equipment such as fork lift trucks and other industrial vehicles are the United Kingdom, Italy, West Germany, France, and Belgium.

American builders are competitive in construction of dredges, tugs, barges, pilot and patrol boats, ferries, etc with European builders. The Equitable Equipment Co. of New Orleans, for example, has already sold two craft to an oil industry transport contractor, and that satisfied customer may soon buy seven more.

The main constraints to increasing the U.S. market share in the water transport sector are the lack of marketing presence and purchasers' doubts about delivery and servicing capabilities. Given the strong Nigerian interest in American products and technology, a good local marketing effort could generate considerable sales. Whether this is done through a persistent, knowledgeable representative or through a high order of direct client service, as many American firms prefer, the companies that meet deliveries and stand behind their products have excellent sales prospects.

*Appendix 12.1.—Cargo handling plant
and equipment (June 1974)
Port of Lagos*

Type	Number
Portal Cranes (S&P)	
3 ton capacity portal	11
5 ton capacity portal	15
5 Ton capacity portal	1
5 ton capacity Gantry	1
Mobile cranes	
6.10 to 10.16 ton capacity	7
25.40 to 30.48 ton capacity	
Fork lift trucks (diesel)	
2, 722 kg capacity at 609.6 mm (R)	98
3, 629 kg capacity at 609.6 mm (R)	37
11, 793 kg capacity at 609.6 mm (R)	14
13, 608 kg capacity at 609.6 mm (R)	12
Forklift trucks (electric)	
2, 722 kg capacity at 609.6 mm (R)	
standard mast	25
2, 268 kg capacity at 609.6 mm (R)	
standard mast	3
Industrial tractors	
2, 722 kg capacity drawbar pull	
heavy duty	42
2, 268 kg capacity drawbar pull	
heavy duty	10
Heavy duty industrial trailers	154
Bag stackers and produce elevators	
Bag stackers	10
Conveyors	3
Sack elevators	4
Dumping grabs (3.05/5.08 ton)	4
Belt loader	1
Shunting locomotives	
265 hp	4
300 hp	7
Railway wagons	
Box type	26
Flat type	29
Weighing scales	
Platform scales	48

Source: *Handbook of the Nigerian Ports Authority.*

*Appendix 12.2.—Cargo handling plant
and equipment (June 1974)
Port Harcourt*

Type	Number
Portal cranes (S&P)	
5.08 ton capacity portal	6
5.08 ton capacity gantry	1
Mobile cranes	
6.10 to 10.16 ton capacity	5
25.40 to 30.48 ton capacity	1
Forklift trucks diesel	
2, 722 kg capacity at 609.6 mm (R)	24
11, 793 kg capacity at 609.6 mm (R)	3
Forklift trucks (electric)	
2, 722 kg capacity at 609.6 mm	
CRS standard mast	4
Industrial tractors	
2, 722 kg capacity drawbar pull	
heavy duty	22
Heavy duty industrial tractors	79
Bag stackers	6
Shunting locomotives (265 hp)	5
Railway wagons (flat type)	45
Weighing scales (platform scales)	16

Note: Apart from the plants mentioned above, the Authority maintains a fleet of motor vehicles to facilitate the work of cargo handling.

Source: *Handbook of the Nigerian Ports Authority.*

*Appendix 12.3.—Cargo handling plant
and equipment (June 1974)
Port of Warri*

Type	Number
Mobile cranes	
6.10 to 10.16 ton capacity	5
25.40 to 30.48 ton capacity	17
Forklift trucks diesel	
3, 629 kg capacity at 609.6 mm CRS	17
13, 608 kg capacity at 1, 219.2 mm CRS	6
Industrial tractors	
2, 722 kg capacity drawbar pull	
heavy duty	17
Heavy duty industrial trailers	63
Bag stackers and produce elevators	
Conveyors	2
Dumping grabs 3.05/5.08 ton	7

Note: Apart from the plants mentioned above, the Authority maintains a fleet of motor vehicles to facilitate the work of cargo handling. A limited number of lighters are also available.

Source: *Handbook of the Nigerian Ports Authority.*

*Appendix 12.4.—Cargo handling plant
and equipment (June 1974)
Port of Burutu*

Type	Number
Hand cranes	
25.40 ton capacity	1
Mobile cranes	
203 ton capacity	6

Source: *Handbook of the Nigerian Ports Authority.*

*Appendix 12.5.—Cargo handling plant
and equipment (June 1974)
Port of Calabar*

Type	Number
Mobile cranes	
6.10 to 10.16 ton capacity	3
Forklift trucks (diesel)	
2, 722 kg capacity at 609.6 mm CRS	3
11, 793 kg capacity at 609.6 mm CRS	1
13, 608 kg capacity at	
1, 219.2 mm CRS	1
Industrial tractors	
907 kg capacity – light duty	9

Note: In addition to the above, the Authority maintains a fleet of motor vehicles, motor cycles and scooters to facilitate the work of cargo handling.

Source: *Handbook of the Nigerian Ports Authority.*

*Appendix 12.6.—Dry cargo traffic 1972–1980, excluding timber exports
(in thousands of tons)*

Year ¹	Lagos /Apapa	Port Harcourt	(Warri, Sapele, Koko Burutu) Delta Ports	Calabar	Total
1973	2.94	.65	.23	.05	3.87
1974	3.18	.73	.27	.05	
1975	3.74	.76	.34	.05	
1976 (est.)	4.20	.85	.37	.06	
1977 (est.)	4.65	.94	.40	.07	
1978 (est.)	5.05	1.03	.44	.08	
1979 (est.)	5.50	1.12	.47	.09	
1980 (est.)	6.00	1.20	.50	.10	7.80

1. Years ending March 31.

Source: *Handbook of the Nigerian Port Authority.*

CONSTRUCTION AND PUBLIC WORKS

Nigeria's construction industry will provide many lucrative sales and contracting opportunities over the next few years. The industry is expected to grow at an annual average rate of 32.5% through 1980, representing the fastest sector growth rate in the economy. Of the \$49-billion expenditures proposed under the *Third National Development Plan*, an estimated \$16 billion will be spent in the construction industry. This will include roads, bridges, ports and airports, industrial buildings, housing, schools, hospitals, army and police installations and government office construction.

Private capital investment in this sector is expected to reach an estimated \$4.4 billion during the 1975-80 Plan period. The high level of activity and rapid acceleration in Nigeria's construction industry should translate into substantial export opportunities for U.S. suppliers of construction

equipment and materials. U.S. manufacturers already have a significant share of the building construction equipment market in Nigeria, particularly in the area of heavy construction machinery. The high regard for U.S. equipment in Nigeria should help to maintain the U.S. competitive position and increase U.S. sales of equipment used in road, housing and office construction and water and sewage systems.

The following three chapters will be devoted to public works because government purchased construction represents a very high proportion of all construction. These chapters will cover housing and building construction, road construction, and water and sanitation system construction. Information on hospital, school, port and airport construction can be found in the corresponding chapters of this Survey.

Chapter 13

BUILDING CONSTRUCTION

HIGHLIGHTS

To meet the country's housing needs, the Federal and State Governments have outlined an ambitious housing program estimated to cost \$3 billion. The Federal Government plans to build a minimum of 60,000 low- and middle-income housing units during the Third Plan period. Construction by the various State Governments will be considerably more extensive. For example, one American contractor has recently signed contracts to build 35,000 units in Maiduguri (North-East State) and 15,000 in Kaduna (North-Central State) in the first year (1975/76) of the Plan. In addition to the construction program, the Federal Government plans to establish a mortgage bank with a capital of almost \$250 million to provide credit for private housing construction. The Federal and State Governments also plan to invest over \$1.8 billion in the construction of general administrative office buildings.

Other programs are intended to increase local production of building materials (see Chapter 17, Construction Materials Manufacturing) and to encourage domestic contractors, although the Government expects to call upon "a good number of reputable foreign contractors" as the Third Plan states, to assist in its construction projects.

EQUIPMENT REQUIREMENTS

The rapid acceleration of construction in Nigeria has outpaced the acquisition of construction equipment all of which are imported. Domestic production of such equipment is not expected for several years. Several construction equipment dealers, however, are expected to begin assembly of certain items, including pumps and vibrators, sometime before 1980.

Nigerian dealers have indicated that the tremendous growth in the construction industry is forcing most Nigerian contractors to modernize in both construction equipment and techniques. Although much of the more sophisticated equipment has just recently been brought in, the Nigerian market is far from saturated. Demand is expected to increase steadily and to diversify over the next few years.

Dealers and contractors in this field have

identified the following products as having the highest sales potential for U.S. exporters:

- Mobile hydraulic cranes, 18-30 tons, wheel-drive, diesel, 100-ft. boom, and flyjib
- Tower cranes, rail-mounted, 30x30 free height without anchorage, 30-meter horizontal jib, 2.5-ton tip
- Vibratory plate compactors, 24"x24"
- Concrete forms, 20,000 linear meters yearly requirement
- Scaffolding, loose pipe and fittings
- Concrete vibrators
- Concrete batchers and mixers
- Block vibrating machines
- Hollow sandcrete block machines electric or diesel driven, 3", 4", 6", 9"x18"
- Concrete pumps
- Centrifugal pumps (diesel driven)
- Air conditioning equipment
- Passenger elevators
- Stand-by generators
- Pneumatic and electric handtools

The tight completion schedules required for construction work has created exceptional demand for such items as concrete vibrators, concrete pumps, concrete forms and centrifugal pumps within the last year. Area Sales Manager Werner O.F. Prochaeka of Henry Stephens Engineering Co., Ltd., representing Koehring International Marketing Co., indicated that his company was selling centrifugal pumps and concrete vibrators as fast as it could get them into the country. Henry Stephens is one of several Nigerian dealers planning establishment of an assembly plant for small construction items. The head of Cappa & D'Alberto, one of the largest contractors in Nigeria, pointed out that his company had just recently begun to utilize concrete pumps on one of its construction projects. The pump has proven to be so much more efficient than the older methods of pouring and distributing concrete that the company plans to use pumps on all of its future projects. Mr. Cappa feels that most other large contractors will soon arrive at the same decision.

A large market for elevators and standby generators (3-5 KVA) is also rapidly developing. Approximately 150 elevators are sold yearly in Nigeria. Most popular are automatic, high-speed models with a capacity of 8 to 12 passengers, which would sell for perhaps \$65,000 to \$80,000 each. Escalators have not yet entered the market.

Table 13.1.—Housing conditions in selected Nigerian cities, 1970–71

City	Percent of households occupying one room	Average no. of persons per room	Percent of houses with tap water	Percent of houses with flush toilet	Percent of houses with electricity
Lagos	72.5	3.8	71.7	43.5	93.2
Port Harcourt	51.5	2.4	75.0	18.6	81.4
Benin	48.0	2.2	24.9	4.0	59.3
Warri	59.9	2.6	62.4	10.9	89.7
Kaduna	63.9	2.1	40.3	14.1	53.3
Kano	69.1	2.4	26.1	1.8	69.1
Ilorin	23.9	1.6	30.7	10.1	28.4
Ibadan	47.3	2.1	33.4	25.2	56.1

Source: *Third National Development Plan*, from a report by the Federal Office of Statistics.

Table 13.2.—Federal construction of housing units by state, 1974–76¹

State	Funds (in millions of U.S. dollars) ²	1974	1975	1976	1976 ³
Lagos	260.9	5,000	10,000	—	—
Rivers	1.8	250	600	1,750	1,400
Kwara	1.8	250	600	1,750	1,400
Western	2.7	250	600	1,750	1,400
South-Eastern	1.9	250	600	1,750	1,400
Benue-Plateau	1.8	250	600	1,750	1,400
North-Eastern	13.3	250	600	1,750	1,400
North-Western	1.8	250	600	1,750	1,400
Kano	6.7	250	600	1,750	1,400
North-Central	37.1	2,000	2,000	1,000	—
East-Central	2.0	250	600	1,750	1,400
North-Western	1.7	250	600	1,750	1,400
Total	333.5	9,500	8,000	17,500	14,000

1. Years end March 31.

2. Converted at exchange rate of ₦1 = \$1.645.

3. April–December.

Source: Federal Housing Authority.

Table 13.3.—Capital programs by government (housing) 1976–80¹
(in millions of U.S. dollars)²

States	Total capital expenditures	1976	1977	1978	1979	1980
Benue-Plateau	5.1	.5	.8	1.0	1.3	1.5
East-Central	20.6	4.5	4.8	3.0	3.8	4.5
Kano	30.9	8.1	8.2	4.8	4.6	5.2
Kwara	8.1	1.2	1.6	1.4	1.8	2.1
Lagos	11.1	1.1	1.7	2.2	2.8	3.3
Mid-Western	30.0	3.0	4.5	6.0	7.5	9.0
North-Central	10.1	1.4	1.9	1.8	2.3	2.7
North-Eastern	18.0	1.8	2.7	3.6	4.5	5.4
North-Western	10.0	1.0	1.5	2.0	2.5	3.0
Rivers	10.0	1.0	1.5	2.0	2.5	3.0
South-Eastern	10.0	1.0	1.5	2.0	2.5	3.0
Western	24.1	2.5	3.6	4.8	6.0	7.2
Total	188.0	27.1	34.3	34.6	42.1	49.9
Federal	1,650.0	165.0	247.5	330.0	412.5	495.0
Total	2,838.0	192.1	281.8	364.6	454.6	544.9

1. Years ending March 31.

2. Converted at exchange rate of ₦1 = \$1.645.

Source: *Third National Development Plan*.

The country's unreliable electric supply makes generators a highly salable item. Standby generators are usually sold out within 3 weeks of importation.

Another very active market is for pneumatic and electric tools. Imports of powered hand tools totaled over \$1.6 million in 1973. With no let-up in sight in the construction boom, imports are expected to exceed \$2 million in 1975 and eventually reach \$5 million by 1980.

The construction industry is also an important user of non-powered hand tools, of which \$10.7 million worth were imported in 1973. Imports (for all uses) are estimated at \$15 million in 1975 and projected to double to \$31 million by 1980.

COMPETITION

Equipment

Contractors report that the most significant consideration in their purchase decisions is the availability of spare parts and after-sales service. Distribution of U.S.-manufactured heavy construction equipment is done through authorized dealers who service and maintain very large, highly integrated inventories of parts and equipment. Major U.S. names presently represented include Clark Equipment, Koehring, International Harvester, Caterpillar, GM-Terex, Fiat-Allis and Mack Trucks. The servicing facilities maintained by dealers for these companies have done much to strengthen the U.S. market position and to create a high reputation for U.S. products.

With the rapid increase in demand for heavy construction equipment, equipment availability and delivery dates have also become major considerations in purchase decisions.

The superiority of U.S.-made equipment largely eclipses price as a significant consideration in purchase decisions. Only the Japanese firm Komatsu has attempted, with little success, to undersell the market in heavy construction machinery.

The United States is also well represented in related building and construction equipment and holds a strong reputation in these markets.

Otis Elevators, through its British subsidiary, claims a 60% share of Nigeria's market for passenger elevators. A number of other European companies, including Schindler (Swiss and Italian) Maryal & Scott (U.K.), Sabiem and Fiam (Italian) and Kore (Swedish) are strong competitors.

The American firm Onan offers its full line of generators to Nigeria through its distributor Will & Busch, Ltd. Units of 3- and 5-KVA capacity are

also supplied by Bosch (Germany) and Honda (Japan). Sales of industrial generators of 25 KVA and above come mainly from Caterpillar, Detroit Diesel (United States) and Lister (United Kingdom).

Air conditioning equipment is one of the few types of building equipment involving local fabrication. Norman Industries Ltd., a licensee of Carrier Overseas Corp., fabricates certain components such as those made from sheet metal. Westinghouse Electric Co. supplies imported air conditioning equipment to Nigeria. Norman Industries Ltd., and Westinghouse control about 90% of the market.

The American firm Black & Decker dominates the electric power tool market with production from its U.K. subsidiary. Robert Bosch of Germany is its strongest Nigerian competitor.

The United States holds a substantial share of the market for such building materials as iron and steel tubes and pipes (\$47 million in imports from United States in 1974). These items are also imported from the United Kingdom, Japan, and a number of other European and Asian countries. Further information on the market for these items can be found in Chapter 17, Construction Materials Manufacturing.

Construction Contracting

American contractors are relatively recent arrivals to Nigeria with several having entered the market since 1974. Many of their initial contracts were related to construction for the Second World Black and African Festival of Arts and Culture (FESTAC). These contracts have helped to provide initial exposure for U.S. firms, many of whom decide to remain in Nigeria and seek other jobs. Unfortunately, some newcomers are learning the hard way, especially in credit extensions and the subsequent difficulty in the collection of accounts receivable. These firms will be competing with such well established foreign companies as Cappa & D'Alberto, G. Cappa, Costain and Taylor Woodrow. U.S. architect/engineer/constructor firms well-established in Nigeria include Brown & Root, United States J.A. Jones, Koehring, Lou Berger, Raymond International, Reynolds, Stanley, and Sverdoup Parcel. The Nigerian construction boom, as well as the depressed construction industry in the United States is expected to encourage many more U.S. firms to enter this market.

Recently the Federal Government has awarded construction contracts to several Eastern European firms, including Technoexportstrov (Bulgarian) and Energoprojekt (Yugoslavian). In addition, a Rumanian consulting engineering firm, Rumconsult, has been awarded the management consultant contract for the massive Federal

Housing Program. These firms have acted as catalysts for introducing Eastern European products on the Nigerian market although this has had little effect on their relatively small market positions.

In many cases Eastern European contractors receive equipment subsidies from their governments and have had considerable assistance from their governments in trade promotion and bidding efforts.

SECTOR ANALYSIS

Nigeria's building construction industry, accounting for almost \$1.4 billion in output during the 1974-75 fiscal year, was the fourth largest contributor to the gross national product (GNP). The sector is expected to have an annual growth rate of over 32% through 1980—the highest of any sector. A major factor in this growth rate will be the Federal and State Governments' far-reaching housing and administrative building programs outlined in the *Third National Development Plan*.

Since Nigeria gained its independence in 1960, little attention has been given to its housing needs even when increased urbanization in the 1960s resulted in overcrowded and unsanitary living conditions for a large portion of the population.

However, the *Third National Development Plan* reflects a different attitude toward Nigeria's housing problem. The document declares: "There is no area of social service where the urban worker in Nigeria now needs relief more desperately than in housing...The government now accepts ...the responsibility to participate actively in the provision of housing for all income groups and will therefore intervene on a large scale in this sector during the Plan period."

During the 1975-80 Plan period a total of \$3 billion will be spent on housing development by all governments. The Federal Government is expected to provide 90% of these expenditures, or \$2.6 billion. The dominant project under this housing program involves direct construction of low-cost residential units. Federal funds alone are expected to create a minimum of 60,000 additional residential units, mainly for the low- and middle-income groups. A deliberate effort will be made under the program to establish viable communities which will provide not only basic infrastructures, such as water supply and sewage treatment works, but also essential community facilities such as schools, health centers, shopping centers, etc.

The initial construction under this program was begun in 1973 to satisfy the housing requirements for the Second World Black and African Festival of Arts and Culture (FESTAC). The major portion of this housing will be located in Lagos and

Kaduna and construction of these facilities was to be completed by November 1975. With the indefinite postponement of FESTAC, and the congestion at Nigerian ports, this timetable had to be extended.

In addition to the Government's contribution to the building industry through its housing program, the Third Plan has outlined projects at a cost of \$1.8 billion for the construction of Federal and State administrative office accommodations, military staff quarters, buildings for the judiciary, and residential accommodations for senior civil servants.

While Federal and State Government expenditures will account for the major portion of construction during the 1975-80 period, the private sector is expected to spend an estimated \$4.4 billion on construction projects, including apartment buildings, office buildings, and manufacturing plants.

Construction in Nigeria is generally concrete block or reinforced concrete, with little use of structural steel, wood or brick. Few buildings extend beyond ten stories. Although some contractors build from their own designs, architectural work generally is done by specialized firms. No local architects currently use computers in their work. Plans usually specify British standard specifications or their equivalents.

The primary agency responsible for housing in Nigeria is the Federal Housing Authority of the Ministry of Housing, Urban Development and Environment. This agency, in conjunction with the various state housing agencies and corporations, plans, coordinates, and finances the various housing programs.

The Federal Housing Authority and the various state housing agencies are the main customers for housing construction contracts in Nigeria. At present there are over 3,000 building construction contractors in the country. They are required to register with the Works Registration Board and are then classified under four basic categories, depending upon the value of contracts they are capable of handling. (A description of each category and government requirements for contractors can be found in Chapter 14, Road Construction).

While there are many Nigerian contractors in the country, the major portion of government contracts are awarded to large, partially foreign-owned firms.

MARKETING APPROACHES

American and other foreign construction equipment suppliers have found strong, reputable dealerships to be the best channel for selling equipment in the Nigerian market. American firms

such as Koehring, Caterpillar and Clark Equipment have utilized such organizations with great success.

Visual promotion techniques such as trade fairs and exhibitions have also been very successful in introducing new equipment and firms to this market. Nigerian businessmen are most attracted by equipment whose durability, easy of maintenance, and versatility can be seen in demonstrations.

American firms which are new to the Nigerian

market and seriously interested in establishing in Nigeria should consult with the Country Marketing Manager of the Department of Commerce (telephone: 202-967-3865) for details on upcoming export promotions in Nigeria.

Federal and state building projects are tendered on a competitive bid basis. American contractors interested in qualifying for such bids must abide by Nigerian decrees and procedures applicable to contractors and companies.

Chapter 14

ROAD CONSTRUCTION

HIGHLIGHTS

The Nigerian Government is keenly anxious to build an adequate road network throughout the country in order to facilitate its economic development goals. The *Third National Development Plan* allocates over \$8.6 billion for road construction between 1975 and 1980, the largest single item budgeted in the Plan. Road construction incidental to industrial expansion and other projects pushes this figure past \$9 billion. These expenditures are expected to increase Nigeria's road network by over 30,000 miles by 1980.

EQUIPMENT REQUIREMENTS

Virtually all of Nigeria's requirements for road construction equipment will be imported for the foreseeable future. Total imports of construction equipment, including scrapers, loaders, motor graders, cranes, concrete mixers, batchers, pavers, and finishers and accessories, amounted to \$35 million in 1974. Anticipated government expenditures on road construction projects from 1975 to 1980 are expected to boost equipment imports to \$41 million in 1975 and \$54 million in 1980. The following categories have been identified as having the greatest sales opportunities for U.S. exporters:

- Tracklaying tractors, 100-400 hp
- Motor graders, 100-150 hp
- Standard and tandem powered wheel tractor scrapers
- Concrete mixers and batchers
- Tractor shovel loaders, wheel-type, 1.5-cubic-yard bucket capacity and up
- Off-highway wheel tractors, contractor-type
- Hydraulic cranes and shovels, self-propelled
- Vibratory road-rollers, self propelled
- Concrete pumps
- Concrete vibrators
- Concrete pavers and finishers

COMPETITION

U.S. firms are the major suppliers in this field, with a market share that has averaged 37% since 1972. Moreover, should U.S.-design equipment, produced in and exported from Europe and Japan be included, the market share controlled by American companies would rise to at least 65%. The United Kingdom and Germany are the second

and third largest suppliers respectively in this market (see table 14.1).

Distributors of road construction equipment feel that the United States will continue to maintain its dominant competitive position in this product category because (1) of the outstanding reputation of American equipment, and (2) the magnitude of civil works projects planned for the next 5 years will require the larger and more advanced equipment produced by American manufacturers.

Among U.S. lines already established through major dealerships are: Caterpillar, GM Terex, Fiat-Allis, Clark Equipment, Koehring, International Harvester, and Mack Trucks. The dealers representing these manufacturers have built and help to maintain the high reputation of U.S. products in this field by providing adequate servicing and spare parts availability. After-sales service is a prime consideration to most Nigerian contractors.

Other road construction equipment suppliers include Massey Ferguson of Canada, and Komatsu of Japan.

While U.S. equipment manufacturers presently dominate this market, American contractors have not been as active in the road construction field. Nigerian Government officials have said that they would like to see more American firms bid for both design and construction jobs.

The following companies are reported to control roughly 60% of the road market: Julius Berger, G. Cappa, Dumez, Louis Berger—American, Stirling—Astaldi and Cappa & D'Silberto. Some of these contractors often purchase equipment directly overseas, particularly from French and Italian firms. However, most contractors have indicated that they prefer American-made equipment because of its durability, advanced design, and because the broad U.S. product lines permit greater flexibility in selecting the right model for the job. They only switch to other lines when U.S. equipment is unavailable.

Until recently, delivery time had been a major competitive factor for Nigerian dealers, primarily as a result of significant increases in local demand and overall world shortages in construction equipment. Most dealers have indicated, however, that the depressed construction market in the United States and Europe in 1975 have brought some relief, and suppliers were able to meet tight delivery requirements.

Table 14.1.—Road construction equipment imports, by country of origin, 1972-1974

	(in thousands of U.S. dollars)		
	1972	1973	1974
<i>Power cranes, drag-lines, shovels and back-hoes, excavator type</i>			
United States	501.2	891.3	1,790.0
United Kingdom	177.7	498.8	970.5
West Germany	174.3	353.9	441.0
Japan	—	—	—
France	190.2	265.5	430.8
Italy	200.0	95.3	380.3
<i>Scrapers, dig, carry haul, all capacity</i>			
United States	61.0	779.5	1,502.3
United Kingdom	271.0	965.8	1,800.1
West Germany	—	—	—
Japan	—	—	—
<i>Contractors off-high-way wheel tractors, 70 hp</i>			
Canada	—	—	120.3
United States	1,500.3	2,210.0	1,976.1
United Kingdom	600.3	751.0	790.4
West Germany	360.1	420.2	750.1
Japan	—	—	70.9
France	—	—	—
<i>Tracklaying tractors, including used 130 to over 300 net HP</i>			
United States	1,500.0	1,600.0	4,000.3
United Kingdom	2,700.3	3,400.3	5,800.1
West Germany	390.0	110.3	260.1
Japan	237.2	210.7	260.4
France	820.1	700.0	1,300.1
Italy	735.4	160.2	1,600.8
<i>Tractor shovel-loaders</i>			
United States	831.1	378.3	1,000.2
United Kingdom	1,950.0	1,445.0	1,802.1
West Germany	—	215.0	370.1
Japan	—	—	95.0
France	100.2	220.8	300.5
Italy	390.7	42.1	400.1
Belgium	950.1	1,621.3	80.1
<i>Motor graders</i>			
United States	1,700.2	1,891.4	3,501.2
United Kingdom	900.4	401.0	440.1
West Germany	—	—	180.9
Japan	—	—	—
France	65.2	40.1	450.0
Canada	1,302.1	1,200.4	2,790.5
<i>Road rollers</i>			
United States	450.9	441.8	251.0
United Kingdom	215.6	110.4	131.0
West Germany	110.1	133.2	200.9
Japan	—	—	—
France	13.1	22.9	42.0
<i>Concrete mixers and batchers</i>			
United States	12.9	47.7	80.2
United Kingdom	780.4	950.0	1,154.3

West Germany	—	61.3	150.2
Japan	—	—	—
France	21.6	—	—
<i>Bituminous mixers and batchers</i>			
United States	—	—	60.0
United Kingdom	24.2	189.2	—
West Germany	—	—	50.0
France	—	31.2	—
<i>Concrete pavers, finishers and spreaders</i>			
United States	247.6	192.5	200.9
United Kingdom	202.0	111.6	150.7
West Germany	90.5	—	100.9
France	180.6	247.0	301.4
<i>Bituminous pavers, finishers and spreaders</i>			
United States	—	20.4	55.1
United Kingdom	118.1	237.7	210.8
West Germany	31.7	80.1	100.1
France	42.4	60.2	90.1

Source: Trade source estimates based on supplier countries' export data.

SECTOR ANALYSIS

Road Construction

There are presently about 64,000 miles of road in Nigeria. These roads are classified as trunk "A," "B," and "C" roads.

The trunk "A" system is the direct responsibility of the Federal Ministry of Works and Housing. They are virtually all paved and built to a standard width of 24 feet with 5-9-foot shoulders. Trunk "A" roads form basically a rough grid of four north-south and four east-west axes (see map). The north-south routes connect the ports of Lagos, Warri, Port Harcourt and Calabar with the northern hinterlands; the east-west routes run roughly from Lagos to Calabar, Ibadan to Enugu, Ilorin to Yola and Sokoto to Maiduguri.

The trunk "B" system is a supporting network of secondary roads, many of which are unpaved, linking divisional capitals, major railroad stops, river ports, and other commercial centers. These roads have been for some time the sole responsibility of the State Governments. However, the Federal Government has recently assumed responsibility for almost 10,000 miles of these roads.

The trunk "C" category are primarily local roads and are the responsibility of the local governments. They are often no more than "bush paths" connecting small farms with their nearby market centers. Following Federal takeover of some "B" roads, some States have in turn taken over "C" roads from local authorities. Thus, more

Table 14.2.—Average quantities of building materials used for road construction in Nigeria

			(in tons)			
	Trunk roads	Asphalt overlay	City roads costing \$477 thousand per km.	City roads costing \$82 thousand per km.	Bridges tunnels, etc. (per \$1.3 million investment)	Tarmac
Cement	195	15	300	70	860	800
Reinforced steel	25	—	50	5	223	220
Structural steel	15	—	20	2	11	—
Other steel	9	—	20	—	208	100
Bitumen	110	120	200	30	65	800

Source: Central Planning Office, Ministry of Economic Development.

Nigerian road mileage is coming under jurisdictions better able to afford substantial outlays for maintenance equipment.

Three basic hard surface roadbuilding techniques are used at present:

Crushed-rock base.—This technique was used to build some of Nigeria's oldest roads, many constructed during the British colonial period.

Laterite.—This is the most frequently used roadbuilding technique, consisting of a bituminous sealant with asphalt surface. However, Federal Government specifications after 1975 will favor cementbased methods.

Soil-cement (stabilized base).—Cement combined with soil and water and then compacted and allowed to hydrate; when cured, a hardened base is formed. A bituminous surface is then added to complete the pavement.

Table 14.2 shows the standard amount of materials used in constructing roads and bridges in Nigeria. Contractors in the country usually figure materials as 25% of their total costs.

Maintenance of Nigeria's road network has been a major problem. Up to now there has been very little enforcement of maximum load regulations on Nigerian highways. This has resulted in serious deterioration of most of the heavily travelled routes, especially near the shoulders. Moreover, the total vehicle population has been increasing steadily over the last few years. In 1974, the total number of vehicles in the country was estimated at about 125,000 passenger cars, 90,000 commercial vehicles, and 4,000 truck trailers. As a result of rapidly growing personal incomes and economy, the number of motor vehicles can be expected to increase substantially and further contribute to the problem of road congestion, particularly in and around the urban areas.

In the future, all Federal roads are expected to be constructed to a design speed of approximately 60 miles per hour. The main features of the standard design are: right-of-way width measuring 300 feet; a 24-foot pavement width; 9-foot-wide shoulders on either side (giving a roadway width of 42 feet); 474.9 ft. stopping sight distance; about 2,099 ft. passing sight distance; 1,000 ft. minimum horizontal curve radius; and 5% maximum gradient.

Bridge Construction

Road bridge construction and maintenance is another area given considerable attention by the Nigerian Government. Most Nigerian bridges are well below standard. They are generally 10 to 12 feet wide, with poorly maintained supports, making them unsuitable to carry most heavy truck loads. Most Nigerian bridges are made with supporting reinforced concrete deck on steel girders, which in turn are supported by concrete or masonry piers and abutments. U.S. constructors/engineers have described recently-constructed bridges as "over-engineered, expensive and slow to build."

Under the Third Plan, new specifications for bridge construction have been outlined to assure maximum safety and durability. These specifications call for at least two lanes as standard with two pedestrian lanes, giving an overall width of 34 feet. Special cases, such as bridges across the Niger and Benue rivers, will be built to at least four-lane standard.

Table 14.3.—Mileage of the Federal and State roads, 1974¹

State	Trunk "A"	Trunk "B"	Total
Lagos	91	219	310
Western	702	2,019	2,721
Mid-Western	362	1,320	1,682
Rivers	14	264	278
South-Eastern	405	1,869	2,274
East-Central	450	1,065	1,515
Benue-Plateau	625	1,862	2,487
North-Central	827	800	1,627
North-Western	921	990	1,911
Kano	292	629	921
North-Eastern	1,995	1,841	3,836
Kwara	638	730	1,368
Total	7,322	13,679	21,001

1. Excluding Trunk "C" roads.

Source: Ministry of Works and Housing, Lagos.

Road Construction Programs and Projects

Both planning and construction of all roads in Nigeria are the responsibility of the Federal and State Ministries of Works. At the Federal level, the operative agency is the Federal Ministry of Works and Housing. The key working level official is the Director of Federal Public Works; beneath him is an Assistant Director (Civil Engineering) who has direct responsibility for road construction. At the State level, the respective Ministries of Works have parallel responsibilities for road construction programs.

Under the *Third National Development Plan* both the State and Federal Ministries of Works have outlined various road construction programs entailing a total costing \$8.6 billion. This is the largest single item in the 5-year Plan. These programs will be concentrated on filling out the grid network of trunk "A" and "B" roads and for such projects as urban bypasses, known as "ring roads," and overpasses. In addition, \$3.3 billion has been allotted for road maintenance and State road construction for 30,000 miles of roads.

Another breakdown of proposed expenditures is given in Table 14.7. It includes road construction included in the Third Plan and that undertaken by various private interests in connection with other projects.

MARKETING APPROACHES

Under the Companies Decree of 1968, any limited liability company in Nigeria must be locally

incorporated. However, the Companies Decree (Special Provisions) allows for certain exceptions which may on occasion apply to foreign-owned contractors. The exceptions are as follows:

- Foreign companies invited to Nigeria, by or with the approval of the Federal Government, to execute specific projects;
- Foreign companies executing specific loan projects on behalf of a donor country or international organization;
- Foreign government-owned companies engaged solely in export promotion activities; and
- Engineering consultants or technical experts engaged in specialist projects, under contract to or with the approval of the Federal Government.

Road construction contracts are generally awarded on the basis of open competitive tender, for which all registered contractors in a given category are invited to bid. Contractors register at the Federal Works Registration Board.

The most appropriate method of entering the Nigerian road construction equipment market is through representation by reliable Nigerian dealers. As a result of the Nigerian Enterprises Promotion (indigenization) Decree of 1972, distributorships are solely owned by Nigerian nationals. Therefore, new-to-market U.S. road construction equipment firms should select a distributor from the reputable Nigerian distribution firms to handle sales and service of their product lines.

Under the indigenization decree of 1972, companies engaged in construction must be 100%

Table 14.4.—Summary of state road programs, 1975–80.

(in millions of U.S. dollars)

States	Total miles	Estimated total cost	1976 ²	1977	1978	1979	1980
Benue-Plateau	1,500	154.7	23.7	33.7	40.5	35.6	21.2
East-Central	1,089	142.5	31.6	31.9	30.6	32.4	16.0
Kano	947	91.0	15.9	18.4	18.0	22.2	16.5
Kwara	836	105.0	16.2	27.5	26.7	21.9	12.7
Lagos	355	51.5	10.1	12.2	11.3	9.6	8.3
Mid-Western	1,130	309.1	97.4	86.1	61.4	43.2	21.0
North-Central	1,281	98.3	21.9	27.5	24.5	18.4	6.0
North-Eastern	1,550	194.0	34.9	48.4	54.0	33.9	22.8
North-Western	1,112	174.7	33.6	57.1	41.4	18.8	23.8
Rivers	183	67.7	22.5	19.7	13.0	8.1	4.4
South-Eastern	614	110.4	21.5	30.2	19.2	21.3	18.2
Western	1,598	124.2	20.9	25.2	26.4	27.8	23.9
Total	11,895	1,623.1	350.2	417.9	367.0	293.2	194.8

1. Converted at the rate of ₦ 1 = \$1.645.

2. Years ending March 31.

Source: *Third National Development Plan*.

Table 14.5.—Road construction equipment imports, 1972–80

(in thousands of U.S. dollars)

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Power cranes, draglines, shovels and backhoes excavator type ¹	1, 253.4	2, 121.9	4, 081.5	4, 634.4	4, 891.6	5, 144.2	5, 431.2	5, 793.9	6, 091.0
Scrapers, dig, carry haul all capacity	341.5	1, 762.3	3, 321.4	3, 797.8	3, 947.5	4, 123.4	4, 489.8	4, 611.9	5, 013.0
Contractors off-high-way wheel tractors 70 hp ¹	2, 470.7	3, 398.2	3, 726.8	4, 285.8	4, 493.8	4, 786.5	5, 163.9	5, 361.2	5, 657.3
Tracklaying tractors including used 130 to over 300 net hp ¹	6, 383.0	6, 181.5	9, 621.8	11, 065.1	12, 512.9	12, 987.4	13, 451.8	13, 904.1	14, 605.9
Tractor shovel loaders ¹	4, 222.2	3, 922.6	4, 098.2	4, 655.4	4, 976.4	5, 211.2	5, 614.8	5, 801.4	6, 145.1
Motor graders	3, 967.9	3, 522.9	7, 362.6	8, 467.1	9, 465.1	9, 747.6	10, 402.8	10, 710.9	11, 176.6
Road rollers	789.7	725.3	643.9	740.5	751.2	786.9	843.2	901.6	977.4
Concrete mixers and batchers ¹	833.9	1, 069.0	1, 402.0	1, 612.4	1, 740.9	1, 841.4	1, 901.5	2, 010.9	2, 128.3
Bituminous mixers and batchers	34.2	230.4	300.0	750.0	795.4	814.6	859.2	910.9	990.0
Concrete pavers and finishers	720.7	551.1	753.9	867.0	891.4	902.4	946.4	974.5	1, 144.4
Bituminous pavers and finishers	202.3	398.4	475.1	546.4	582.7	679.0	691.5	711.4	721.2

1. Includes sales for uses other than road construction.

Source: 1972–74 data are trade source estimates based on supplier countries' export statistics; 1975–80 projections are Commerce Survey Team forecasts.

Nigerian-owned unless they have excess of either the equivalent of approximately \$600,000 paid-up capital or \$1.5 million in annual turnover, in which case foreign ownership up to 60% is allowed. The minimum requirement for construction companies that want to qualify for foreign participation is either (a) paid-up share capital of more than \$658,000 (₦400,000) or (b) an annual sales revenue of more than \$1,645,000 (₦1 million), whichever the Enterprises Promotion Board considers more appropriate. The Federal Works Registration Board, where all contractors must register to obtain Federal contracts, has classified the country's 3,000 contractors into four basic categories, depending on the value of contracts which they can handle. The categories range as follows:

Value of Contract Eligibility	Category
up to \$32,900	A
\$32,900 to \$329,000	B
\$329,000 to \$3,290,000	C
over \$3,290,000	D

Categories "A," "B," and "C" are reserved exclusively for indigenous contractors. At present there are too few qualified "D" category Nigerian contractors to handle all the work that is available. This situation will be even more acute as the pace of road construction intensifies. The limited

expertise among Nigerian contractors in this category has prompted selection of majority-owned foreign contractors for multimillion dollar contracts over the serious objections of local firms. Consequently, numerous local contractors are seeking foreign partners.

Table 14.6.—Summary of Federal road programs 1975–80

(in millions of U.S. dollars)¹

Total Federal road program	7, 164.6
Trunk "A" network	4, 143.7
Asphalt overlay	219.8
Continuing projects	560.1
New projects	3, 363.8
Existing Trunk "B" roads taken over by the Federal Government	2, 368.8
Urban bypasses	148.8
Intercity overpasses	96.8
Miscellaneous projects	61.1
Materials and research	8.2
Training	16.5
Road maintenance	227.0
Studies, design and rights-of-way acquisition	98.7

1. Converted at the rate of ₦1 = \$1.645

Source: *Third National Development Plan*.

*Table 14.7.—Total Nigerian road
construction projects, public
and private, 1975–80*

<i>Type of Construction</i>	<i>Capital expenditures ¹</i>	<i>Road length ² (in miles)</i>
Trunk "A" roads (con- tinuing and reconstruc- tion projects)	1, 265.0	5, 121.0
Trunk "A" roads (new projects, urban by- passes)	1, 676.7	3, 114.9
Lagos arterial roads	732.7	130.4
Bridges	238.9	—
Asphalt overlay	231.8	1, 956.2
State bituminous roads	1, 240.0	5, 899.5
State laterite roads	338.5	7, 106.0 ³
Other laterite roads	40.8	—
City roads costing \$477 thousand per km.	103.6	136.6
City roads costing \$82 thousand per km.	1, 025.3	7, 741.4
Bridges built as part of other projects	65.5	—
Federal take-over of Trunk "B" roads	2, 138.5	—

1. In millions of U.S. dollars converted at a rate of ₦ 1 = \$1.645.

2. Converted to standard width of 24 feet.

3. Given in kilometers, not converted to standard width.

Source: Central Planning office, Ministry of Economic Development

Chapter 15 WATER AND SEWER SYSTEMS

HIGHLIGHTS

Nigeria has ambitious plans to install modern water and sewer systems at a cost of \$2.2 billion during its Third Plan period (1975-80).

U.S. equipment manufacturers, consulting engineers, and contractors specializing in these areas will find the welcome mat out for those who can meet the specifications on a wide range of requirements.

SECTOR ANALYSIS

Water Supply

The expansion and upgrading of the nation's water systems are receiving high priority from the Nigerian Government since most facilities are inadequate and obsolete. There are many sizable communities without pipe-borne water. Towns with potable water supplies serve only about 30% of their total populations. The per capita consumption in towns is often less than 18 gallons (Imperial) per day. In rural areas where the majority of people live, probably no more than 10% of the population have access to pipe-borne water. The rest rely on unhygienic shallow wells and streams.

Insufficient water supplies have also affected industrial growth in the country. Frequent disruptions in public water service have forced industrial establishments needing large volumes of water on a regular basis to develop their own sources of supply.

Natural water resources are not the problem. Over half the country receives at least 50 inches of rainfall annually. Three large rivers pass through the country and smaller ones empty into the Atlantic Ocean or Lake Chad. The problem, therefore, is greater utilization of these resources.

The Nigerian Government has outlined major objectives in the *Third National Development Plan* to alleviate water shortages. In particular, the Government plans to meet a minimum target of 25 gallons per person per day in all major urban centers and to ensure that all communities of 20,000 people or more are supplied with pipe-borne water by 1980. State Governments that have not yet established a specialized agency to ensure the efficient planning, execution and administration of water supply will do so according to the Third Plan.

The main government agency responsible for water supply is the Water Supply Division of the Federal Ministry of Works and Housing. State water supply plans and programs require the approval of the Federal agency. They also receive financial assistance from that agency.

Under the Third Plan \$1.5 billion will be spent by the State and Federal Governments on water supply schemes, including treatment works and distribution systems. The water supply program will include major urban projects, as well as secondary urban center and rural area projects. In northern areas where water resources are limited, a major portion of the program will center on dam construction and bore-hole drilling. An estimated 34 dams are expected to be constructed during the Plan period.

One of the most ambitious water resource projects will be the Lagos Water supply Scheme. Total cost of the project is estimated at \$600 million through 1996.

The Lagos waterworks system dates back to 1915. Relying on the Iju River as its water source, this system originally had a daily flow of 2.5 million gallons per day. As the Lagos area began to expand and the need for potable water supplies increased, the system was expanded, and the Ogun River was used as an additional water source. Production was raised to 24 million gallons per day.

However, by 1969 the Lagos metropolitan area had expanded so rapidly that demand for water had completely surpassed supply. Pressures from Lagos suburban areas and major industrialists forced the Lagos State Government, which had taken complete water supply responsibility from the Federal Government, to devise a crash program.

The program developed called for the expansion of the Lagos waterworks system in three phases. The first phase, consisting mainly of the modernization of existing treatment works at Iju, was completed in 1972. The second and third phases when completed will raise the water supply of Lagos from the existing 45 million gallons a day to 300 million gallons per day.

Because of the national importance of the Lagos Water Supply Scheme, the Federal Government will loan the Lagos State Government \$54.8 million to carry out the scheme. This amount is about 75% of the Federal Government's planned expenditure during the Third Plan period.

The Kano State Water Supply Program is another major project to be carried out during the Third Plan. Total government expenditures for this program have been estimated at \$65.8 million. It includes a program for sinking 9,000 wells in various rural districts at a cost of \$16.5 million. In addition, a metropolitan Kano Water Supply Project, estimated to cost \$16.5 million, is planned. This project involves the expansion of water intake and the laying of distribution pipes to cover the suburbs of Kano City and Township.

Other major urban projects are included in the Third Plan for Kaduna (\$65 million), Ilorin (\$20 million),

Table 15.1.— Water supply expenditures, 1975-80
(in millions of dollars) ¹

<i>State</i>	<i>Total estimated expenditures</i>	<i>1976</i> ²	<i>1977</i>	<i>1978</i>	<i>1979</i>	<i>1980</i>
Benue-Plateau	95.6	9.6	14.3	19.1	23.9	28.7
East-Central	94.7	9.5	14.2	18.9	23.7	28.4
Kano	65.9	6.6	9.9	13.2	16.5	19.7
Kwara	75.0	10.8	14.7	15.0	18.1	16.4
Lagos	73.1	7.3	11.0	14.6	18.3	21.9
Mid-Western	121.7	12.9	18.1	24.2	30.2	36.3
North Central	67.6	6.8	10.1	13.5	16.9	20.3
North-Eastern	69.4	16.0	14.8	15.9	12.4	10.3
North-Western	71.5	7.1	10.7	14.3	17.9	21.5
Rivers	12.6	1.3	1.9	2.5	3.1	3.8
South-Eastern	51.2	5.1	7.7	10.2	12.8	15.4
Western	209.7	21.0	31.5	41.9	52.4	62.9
Total States	1,008.0	114.0	158.9	203.3	246.2	285.6
Federal	522.2	52.5	78.3	104.6	130.5	156.6
All governments	1,530.2	166.2	237.2	307.9	376.7	442.2

¹ Converted at the rate of ₦1 = \$1.645.

² Fiscal years ending March 31.

Source: Federal Office of Statistics, Lagos.

Jos-Bukuru (\$25 million), and Maiduguri (\$15.6 million).

Sewage, Drainage, and Refuse Disposal

Three methods are currently utilized to dispose of human wastes in both urban and rural settlements. These are septic tanks, the traditional "salga" system (pit latrine), and the conservancy system.

Flush toilets emptying into septic tanks are now regarded as essential for all new houses in modern residential areas. The salga system—bore holes in an enclosed area into which untreated wastes are deposited—is found mainly in the older residential areas. The conservancy or the "pail" system is the deposit of untreated wastes in a central area or the dumping of it into a river or lagoon. These last two systems are both an environmental and a health problem.

About \$700 million will be spent by the State and Federal Governments under the Third Plan for the development of sewage, drainage, and refuse disposal facilities. Approximately \$225 million is budgeted for feasibility studies, detailed designs, and construction of modern sewage and drainage systems in the main urban centers. The balance is tagged for septic tanks, septic tank emptiers, public convenience stations, refuse collection vehicles and disposal facilities. Feasibility studies have already been prepared for Lagos (Victoria Island), Ibadan and Port Harcourt, and actual construction in these areas is expected to be completed by the end of the Plan period.

COMPETITION

The United Kingdom and Germany have been major equipment suppliers in this market, with market shares

of 50% and 21%, respectively. U.S. exports to this market were negligible in 1974. Distributors say that a major promotion effort on the part of U.S. equipment suppliers, and the securing of contracts by U.S. contractors and consultants could give the United States a significant market share by 1980.

Although most equipment will continue to be imported for the foreseeable future, the Lagos State Government is planning to construct a factory for the production of prestressed concrete pressure pipes ranging from 36 to 100 inches in diameter during the Plan period. Several American companies have already been approached regarding construction of this factory.

U.S. contractors have not been active in construction of water systems and water treatment facilities in Nigeria. West German and British firms have been the major competitors in this market. For example, a West German company, GKW Consulting Engineers (consulting services in sanitary engineering), has been awarded a contract to manage the Lagos Water Supply Expansion Scheme. However, a French company, Degremont, has already received the contract for the construction of the Lagos-Victoria Island Sewage Scheme.

No Nigerian firms are capable of constructing large-scale, centralized sewage systems. However, there are an estimated 16 companies involved in small-scale sewage projects. The largest of these firms, part of the BEWAC trading complex, claims to control 80% of that market. This company employs a full-scale engineering and construction unit and installs surface-aerated plants imported from the U.S. firm, Smith-Loveless. Until adequate municipal sewage systems are installed throughout the country, such systems will continue to be in popular demand.

EQUIPMENT AND SERVICE REQUIREMENTS

Equipment

Nigeria is totally dependent upon imports for its water treatment and sewage systems equipment and probably will continue to import the major portion of this equipment through 1980. Statistical classifications are too broad to be useful in measuring the size of the equipment requirements for this sector, except for water filtration apparatus. Imports of water filtration apparatus amounted to \$90,000 in 1974 and were expected to reach \$1 million in 1975 and \$5 million by 1980. A useful indicator is the planned investments in water supply and sewage and drainage systems. The *Third National Development Plan* encompasses programs and projects costing \$2.2 billion to be undertaken during the Plan period.

Government officials encourage U.S. firms to enter this market. They are interested in any firm which can meet their specifications and other conditions at minimum cost. According to specialists in the field, sales prospects appear to be best for the following items:

- Horizontal raw water pumps
- Clear water pipes, 2-m 3/sec.,
- Meter pumping heads, electrical motors and starters
- Pump station piping—inlet check valve outlet side, check valve water hammer protection
- Chemical dosing pumps
- Mixers and stirrers for chemical preparations
- Chlorinators—storage trunks, sprinklers
- Flocculators
- Transformers
- Diesel generator sets
- Switchboard panels
- Circuit breakers

- Cables
- Liquid chlorine
- Aluminum sulphate
- Hydrated lime
- Sewage systems and components
- Well-drilling equipment
- Refuse collection trucks

Until efficient centralized public water systems are established in the major urban centers, many Nigerian urban home owners and industrial establishments will continue to utilize their own water supplies and purification equipment. The equipment used for such purposes includes water pumps (300-1,000 gallons per hour), water treatment filters, settling tanks, and chlorine feeders. Five distributors sell such equipment in Nigeria and demand for this equipment has been increasing steadily.

Imports of well-drilling equipment also will increase substantially through the 1975-80 Third Plan period, as significant State well-drilling programs get under way.

The market for small-scale sewage systems was valued at \$3.3 million in 1974 and should provide increased export opportunities for U.S. suppliers. Surface aerated plants are generally used for communities of 200 to 1,600 people, including universities, colleges, hospitals and shopping centers. They have been popular in Nigeria where centralized sewage systems are virtually nonexistent.

The Third Plan will provide abundant opportunities for U.S. constructors and consultants specializing in public water and sewage systems since immense sums have been earmarked for construction of wells, dams, water treatment plants and water distribution systems; feasibility studies for sewage and drainage systems in all State capitals; and the construction of sewage-drainage systems and waste processing plants.

Table 15.2.—Sewage and drainage expenditures, 1975-80

(in millions of U.S. dollars) ¹

State	Total estimated expenditures	1976 ²	1977	1978	1979	1980
Benue-Plateau	16.0	1.6	2.4	3.2	4.0	4.8
East-Central	45.2	4.6	6.1	9.2	11.5	13.8
Kano	21.8	2.2	3.3	4.4	5.4	6.5
Kwara	10.0	1.0	1.5	2.0	2.5	3.0
Lagos	115.1	11.5	17.3	2.3	28.8	34.5
Mid-Western	95.4	9.5	14.3	19.1	23.9	28.6
North-Central	15.1	1.5	2.3	3.0	3.8	4.5
North-Eastern	12.4	1.2	1.9	2.5	3.1	3.7
North-Western	7.4	.7	1.1	1.5	1.9	2.2
Rivers	42.8	4.3	6.4	8.6	10.7	12.8
South-Eastern	7.6	.8	1.1	1.5	1.9	2.3
Western	61.3	6.1	9.2	12.3	15.3	18.4
Total States	450.1	45.0	66.9	90.3	112.8	135.1
Federal Government	254.0	25.4	38.1	50.8	63.5	76.2
All Governments	704.1	70.4	105.0	141.1	176.3	211.3

¹ Converted at the rate of ₦1 = \$1.645.

² Fiscal years ending March 31.

Source: Federal Office of Statistics, Lagos.

Appendix 15.1—Phases of Lagos Water Supply Scheme

PHASE I

Iju Waterworks

Expansion of treatment and pumping capacity from 24 Mgal/d¹ to 45 Mgal/d

Control of leakage in distribution system finished and put in operation. Finished in 1972.

PHASE II

Stage I

Isasi Waterworks

Treatment capacity 4 Mgal/d, Trunk Main capacity 12 Mgal/d.

Cost: \$23.03 million.

Construction: 1974-1975.

Stage II

Isasi Waterworks

Treatment capacity 35 Mgal/d, Trunk Main "F", part of "E" - "E1" from Costain to Lagos and Apapa. Salinity protection at Isasi and Iju.

Cost: \$76-plus million

Construction: 1976-1978.

Stage III

Iju Waterworks

Cost: \$57-plus million.

Trunk Mains "E" - "G".

Construction: 1977-1978.

PHASE III

Stage I

Adiyan Waterworks 1.

Dam at Rodeye, intake treatment plant 70 Mgal/d, reservoir, Trunk Mains "H" - "H3".

Cost: \$178-plus million.

Construction: 1978-1981.

Stage II

Adiyan Waterworks 2.

Treatment plant additional 70 Mgal/d to total 140 Mgal/d reservoir. Trunk Mains "J" - "K".

Cost: \$170 million.

Construction: 1984-1988.

Stage III

Adiyan Waterworks 3.

Intake and Treatment extension to 210 Mgal/d Trunk Mains L, M & N.

Cost: \$133.7 million.

Construction: 1991-1996.

¹ Millions of gallons per day.

Source: *Lagos Water Supply Expansion Programme (Preliminary Information)*, Lagos State Government Ministry of Works and Planning.

MANUFACTURING

Nigeria's manufacturing sector has grown at a disappointing rate over the last decade. Manufacturing currently represents just over 5% of the gross domestic product (GDP) and has experienced a 10% annual average growth rate since 1970. Expectations for growth in this sector had been much higher, however, considering Nigeria's favorable conditions for industrial development and the 9% overall GDP growth rate over the last 5 years. Anticipated investments in manufacturing during the 1975-80 period are expected to raise the growth level of this sector considerably.

The manufacturing sector has been characterized until now by light industries using traditional technologies. Processed foods and textiles have accounted for over 50% of sector production. Other industries in this sector include matches (106,217 boxes in 1973), suitcase production (470,741 in 1973) and tire retreading (21,329 in 1973).

Engineering industries account for less than 3% of total manufacturing, and most of this is assembly activity. Nigeria assembled 7,458 commercial vehicle chassis, 120,010 radios and 1,866 televisions in 1973.

Both public and private industrialists have had difficulties in expanding and diversifying their manufacturing enterprises. Some of the major constraints on the growth of this sector include inadequate infrastructure, shortage of industrial manpower, lack of interest in manufacturing among Nigerian businessmen, and the slow implementation of government manufacturing projects.

The Federal and State Governments have formulated significant programs in the manufacturing sector during the Third Plan period. Roughly \$7.6 billion has been earmarked to implement these programs.

In addition to the planned \$7.6 billion in direct government investments in manufacturing, private investors are expected to invest \$3.2 billion in various manufacturing ventures.

To stimulate the development of domestic industry, the Federal Government plans to lend the Nigerian Bank for Commerce and Industry (NBCI) \$164 million and the Nigerian Industrial Development Bank (NIDB) \$574 million to be relent to entrepreneurs on favorable terms.

Manufacturing industries which will be given special consideration by these Government banks include:

Major export industries where 40% or more of the output is destined for export;
Engineering industries; and
Basic industrial chemicals

Foreign private investors will be encouraged to seek the participation of Nigerian institutions including the NIDB, the NBCI and the State Governments in their projects.

This sector report contains chapters treating chemicals, textiles, printing, food manufacturing and construction materials. These industries are the most developed and account for some 85% of all manufacturing production and 94% of all Third Plan expenditures in manufacturing.

Chapter 20, Manufactured Foods, is devoted to the bakery and beverage industries. Other processed foods including meat, milled grain, fish, and dairy products are treated in Agriculture and Allied Industries, Chapters 21-23. Timber processing is covered in Chapter 24. Motor vehicle assembly is discussed in Chapter 10, Commercial Road Transport, and Chapter 4 is devoted to the petroleum industry.

Government investments in manufacturing, 1975-80

(in millions of dollars)¹

	<i>Federal</i>	<i>State</i>	<i>Total</i>
Food processing	626.5	127.4	754.0
Textiles	9.0	38.1	47.1
Timber processing	546.1	28.9	575.0
Chemicals	608.6	35.8	644.5
Petroleum and petrochemicals	3,343.4	16.0	3,359.4
Mineral products (cement, brick, glass, etc)	280.0	182.2	462.2
Iron and steel	1,713.3	3.2	1,716.5
Machinery and equipment	-	35.5	35.5
Electrical machinery and equipment	1.6	9.1	10.7
Transport equipment	19.5	.2	19.7
Other manufacturing	2.9	11.1	14.0
All manufacturing	7,150.9	487.7	7,638.6

1. Converted from Naira at ₦1 = \$1.645.

Source: *Third National Development Plan*.

Chapter 16 CHEMICALS

HIGHLIGHTS

Sales by Nigeria's chemical industry amounted to over \$150 million in 1972 when the industry employed over 13,000 persons in nearly 70 establishments. Since the current rapid pace of growth will spur demand for many chemical products, local chemical manufacture is expected to grow substantially during the 1975-80 period. The boom in the construction industry is expected to place increased demands for builders' chemicals, protective coatings, cement additives, and paints. Also, as the average incomes of Nigerians increase, demand for household chemicals, cleaners, cosmetics, and soaps will rise. Added emphasis on agricultural production will stimulate sales of agrochemicals.

The chemical industry relies heavily on imports for basic raw materials and equipment. Until the country's first petrochemical plant comes onstream in 1980, Nigerian industry will remain dependent on imports to satisfy its growing demand for most chemicals.

EQUIPMENT REQUIREMENTS

Imports of equipment used by the chemical industry are expected to increase from \$1.9 million in 1974 to \$3.4 million in 1980, representing expansion at a rate of more than 12% per year (see table 16.1). Due to the rapid growth predicted for the pharmaceuticals and cosmetics sectors, sales of mineral crushing and sorting machinery for chemical manufacturing use should reach almost \$1.3 million in 1980. Chemical manufacturers are also reported to be interested in pumps and compressors.

COMPETITION

While the United Kingdom presently is the leading supplier of chemical equipment, the United States and Germany have succeeded in making some penetration of the market. Trade sources reported that U.S. manufacturers traditionally supply 30% of all chemical equipment used in Nigeria.

Chemicals, used in the manufacturing processes of many Nigerian industries, are primarily

supplied by U.K. firms. The United Kingdom supplied nearly 50% of imported pharmaceutical products in 1973, and this percentage share grew slightly in 1974. Sales by British suppliers accounted for 25% of imports of plastic materials in 1973. U.K. firms are also the leading suppliers of both organic and inorganic chemicals, although their share declined between 1972 and 1974.

Germany is the second largest supplier of chemicals and dominates the market in sales of paints and related products. German firms sold synthetic organic dyestuffs valued at \$7.7 million in 1973, and their market share in this category grew in 1974. Furthermore, most chemical fertilizers purchased in 1973 came from Germany.

Limited quantities of chemicals—less than 5% of the 1975 total—are imported directly from the United States. However, subsidiaries of U.S. manufacturers located abroad are successfully selling in the Nigerian market today.

SECTOR ANALYSIS

Cosmetics and Soaps

Value added by cosmetics, soaps and perfume production in 1972 totaled nearly \$42 million and sales exceeded \$90 million. This market is expected to expand 20% annually between 1975 and 1980. Production of cosmetics passed the 10,000-ton mark in 1973, while output of soaps was reported to have reached nearly 62,000 tons and perfumes tons.

In an effort to fully utilize local palm oil, the Third Plan proposes the construction of five soap factories at a total cost of close to \$10 million. These plants are to be built in the Kwara, Mid-West, North-Eastern, Rivers, and South-Eastern States. Among the prominent producers, Lever Brothers is manufacturing soap in Nigeria from palm oil; Colgate-Palmolive imports soap "noodles."

In 1972, there were some 17 cosmetic manufacturers in Nigeria, mainly producing cologne, bleach creams, skin creams, pomades, lipsticks, powder, hair tonics, shampoos and deodorants.

Raw materials such as essential oils and talcum powder have to be imported. Most of these products are imported from the United Kingdom,

Table 16.1.—Imports of chemical equipment, 1972–75 and 1980
(in thousands of U.S. dollars)¹

SITC		1972	1973	1974	1975	1980
718 51	Mineral crushing and sorting machinery	145	506	729	802	1, 292
719 21	Pumps for liquids	206	255	394	433	697
719 22	Air pumps, vacuum pumps	78	179	392	431	694
719 23	Centrifuges	71	145	165	182	293
719 63	Weighing machinery	21	28	40	44	65
719 62	Machines for cleaning and filling bottles	110	228	125	138	222
861 80	Meters and counters	13	35	14	15	21
665 81	Laboratory glassware	30	53	83	91	147
	Total	674	1, 429	1, 942	2, 136	3, 431

1. Exchange rates: 1972–73, ₦ 1 = \$1.52; 1974, ₦ 1 = \$1.62; 1975–80 projected in dollars.

Source: 1972–74 Federal Office of Statistics, Lagos; 1975–80 Commerce survey team.

Germany, the Peoples Republic of China, and Italy. However, the country does use some of its raw materials such as palm oil, petroleum residuals, and oil seeds.

The cosmetic industry imports most of its equipment from the United Kingdom, Italy and Germany. Most manufacturers prefer equipment of simple design because it is easy to maintain. Companies usually have their own repair shops and spare parts are often flown in from Europe.

A.C. Christlieb (Nigeria) Ltd. manufactures toiletries and plastic products, and since 1970 the firm has represented Chesebrough-Pond. Christlieb sales totaled \$32 million in 1974.

The firm's equipment is mainly purchased from British, German and Italian suppliers and is considered sophisticated by Nigerian standards. Machinery imported from the United States takes 10 months to arrive, while European suppliers are able to guarantee arrival within 6 months. Spare parts can be obtained from Europe in 24 hours.

Haco Ltd., a British subsidiary established in 1950, caters to the higher Nigerian income bracket. The firm maintains six sales outlets throughout the country and imports perfumes and colognes from the United Kingdom and France. It manufactures pomades, creams and face powders.

The company imports raw material from the United Kingdom, France, and Germany. Talcum powder is imported from the Peoples Republic of China and is said to be of excellent quality and is quite low priced.

Lever Brothers (Nigeria) Ltd., (a subsidiary of Unilever Ltd.) manufactures detergents and soaps, as well as toilet preparations such as toothpaste, shampoos and creams. Annual sales volume is \$49 million, and the firm has 2,000 employees and 30 sales outlets.

Lever Brothers imports its equipment from Acma and Masoni of Italy. Tallow, sulphates, silicates and caustic soda must also be supplied by foreign producers.

Associated Industries Limited, Illupeja (an affiliate of the Paterson-Zochonis Group in London) manufactures soap, detergents, cosmetics and some pharmaceuticals. The company is a joint venture between Greek nationals and Nigerians; it has 2,500 employees and two plants. Sales are estimated at \$40 million annually and are made through 25 sales outlets throughout the country.

A.J. Seward & Co. in Apapa is a major manufacturer of toiletries, cosmetics, creams, pomades, and deodorants. It employs 600 workers and its cosmetic sales totaled \$30 million in 1975.

Plastics

Sales by the 24 plastic products manufacturers exceeded \$29 million in 1972, and trade sources estimate current output to be 50,000 tons annually. The industry employed nearly 4,000 people in 1972 making wrapping materials and containers. Trade sources predict that the industry will grow by an average of 20% annually between 1975 and 1980.

The Third Plan allocates over \$800,000 to produce foam mattresses, cushions, and plastic products of all kinds. The project, expected to be completed by 1979, is intended to satisfy consumer demand for these products in the northern States. Many states have indicated an interest in further development of the plastic products industry and have allocated funds for further study.

Paints

Demand for increased quantities of paint stems mainly from the rapid expansion of the construction industry. Sales of paints in 1972 totaled over \$15 million and value added was recorded at close to \$8 million. The six local manufacturers employed 756 people in 1972. Domestic output of

paints reached over 3 million gallons in 1973, and imports added another 650,000 gallons to the total supply.

Imperial Chemical Industries (Nigeria) Ltd. (ICI), is one of the largest paint manufacturers. The firm employs 400 people and has annual sales of \$30 million, which includes production of drugs and toiletries.

Pharmaceuticals

The manufacture of pharmaceuticals in Nigeria consists mostly of nonprescription liquids, pills and powders. Although a state-owned laboratory manufactures limited quantities of smallpox, yellow fever, and rabies vaccines, most ethical drugs are imported. Production value-added in 1972 totaled nearly \$7 million, a substantial rise over the 1971 level of \$2.7 million. Over 6,000 tons of pharmaceuticals were produced in 1973.

Sales of pharmaceutical products are forecast to grow by 20% annually over the next several years. Part of the anticipated market growth should result from the emphasis placed on upgrading medical care in the *Third National Development Plan* (see Chapter 8, "Health Care"). The Federal and State Governments have allocated approximately \$123 million in order to expand medical colleges and university hospitals. There were only 3,000 doctors and 1,000 pharmacists in 1975. The Third Plan also envisions the establishment of port health offices and quarantine stations. The Governments of the Kwara, East-Central, North-Central, and South-

Eastern States have allocated funds for studying the pharmaceutical industry.

The industry employs 5,000 Nigerian workers. Most companies provide extensive training programs for their personnel. Teachers are usually qualified Nigerian pharmacists, although a few companies bring in teachers abroad.

The equipment is mostly imported from the United Kingdom, Germany, or Italy and consists mainly of crushers, mixers, pill form machines and sometimes small conveyor belt units for assembly operations.

Nonprescription drugs usually are sold directly to pharmacists by the company's sales representatives.

An estimated 75% of the ethical drugs are sold to the individual State Governments for dispensing at the State clinics. They are sold on a tender basis and are delivered directly to the State Governments by the manufacturers. The remaining 20% to 30% are sold to pharmacists along with proprietary drugs.

Sterling Nigeria Ltd. is one of the largest pharmaceutical companies. The firm is a subsidiary of the American company Sterling Winthrop. It primarily manufactures Cafenol. Its owners hope to expand Sterling Nigeria's Sterling's Nigeria's production facilities so that it may become the main source of supply for sales outlets in all of West Africa.

The firm employs 500 persons in 14 retail outfits throughout the country. It employs only seven British citizens, the remainder of its staff being Nigerians. It also employs four Nigerian pharmacists are stationed in Kano, Ibadan, Aba, and Jos.

Table 16.2.—Imports of chemicals, 1972–75 and 1980
(in millions of U.S. dollars)¹

SITC		1972	1973	1974	1975	1980
512	Organic chemicals	7.5	12.5	25.2	29.3	59
513	Inorganic chemical elements					
	oxides and halogen salts	10.4	11.2	22.0	25.3	51
514	Other inorganic chemicals	12.0	15.8	24.6	28.3	57
521	Mineral tar .....	.2	.2	.5	.5	1
532	Dyeing and tanning material .....	.5	.5	.8	.9	1
533	Pigments, paints and					
	varnishes	11.4	19.1	24.5	29.4	73
541	Medicinal and pharmaceutical					
	products	48.4	39.4	75.9	91.1	227
551	Essential oils and perfumes	2.8	3.6	5.0	6.0	15
553	Perfumery and cosmetics	1.9	2.6	3.8	4.6	11
554	Soaps, cleansing and polishing					
	preparations	3.6	6.1	23.1	27.7	69
561	Fertilizers	3.6	2.6	10.0	12.5	38
571	Explosives and pyrotechnic					
	products	1.7	2.4	3.5	3.9	6
581	Plastic materials	11.3	23.2	44.9	56.1	171
599	Chemicals, NES	20.1	22.9	38.9	42.8	69
	Total	135.4	162.1	292.7	358.4	848

1. Exchange rates: 1972–73, ₦1 = \$1.52; 1974, ₦1 = \$1.62; 1975 and 1980 projected in dollars.
Source: 1972–74, Federal Office of Statistics, Lagos; 1975 and 1980, Commerce survey team.

The firm advertises propriety products mainly by radio. For ethical drugs, it advertises in magazines, arranges seminars and grants a Winthrop Scholarship, subsidizing the expenses of two outstanding Nigerian students during the last two years of their studies.

All the company's equipment, purchased through agents associated with the Wellcome Company, is imported from the United Kingdom, Germany, and the United States.

GLAXO, another very large pharmaceutical company, has 400 employees. The company manufactures mainly vitamins, iron tablets and anti-diarrhea products. All other drugs sold by GLAXO are imported from the United Kingdom. GLAXO's equipment has been imported from the United Kingdom and Germany. The company has 20 salesmen, some of whom are pharmacists and visit doctors and hospitals as detailers.

Petrochemicals

Nigeria has long intended to make productive use of its oil-associated natural gas, now flared at the rate of some 2 billion cubic feet per day. A petrochemical complex was included in Nigeria's *Second National Development Plan* but now is expected to be constructed during the Third Plan (1975-80) period. The Third Plan tags the required public investment for the complex at \$495 million, although private industry observers state that inflation and changes in the project definition could easily drive the cost to \$1 billion or more.

Early in 1973, the first economic studies for the project suggested a capacity of 100,000 tons per year; even before the end of that year, however, it became evident that the Nigerian economy would support a much larger plant, and 350,000 tons became the objective. The *Third National Development Plan* includes the following product breakdown:

	Annual capacity in metric tons
Caustic soda	40,000
Vinyl chloride monomer (VCM)	40,000
Polyvinyl chloride (PVC)	40,000
Polyethylene	40,000
Ethylene	100,000 - 250,000

These figures are almost certain to be revised again (a qualified chemical consultant estimates the Nigerian market can easily absorb 100,000 tons of PVC and 100,000 tons of polyethylene each year).

From the outset, it was intended the plant capacities be influenced by the technical partner eventually selected by the Nigerian government. Some 14 American, European, and Japanese

firms have at one time or another sought participation in this petrochemical project. Since the Nigerian Government began prequalifying firms during the Second Plan period, the scope of the project has been substantially enlarged, costs have at least doubled, product prices have fluctuated, and a half-dozen firms have ceased taking an active interest. Nonetheless, numerous multinational companies are actively interested in the project although their names are not released by the Government.

While there is some doubt that the project can be completed and onstream by the 1978 target date, the appointment by the Ministry of Industries of the British-American firm Chem Systems to draw the plant specifications represents tangible progress.

A relatively recent issue which will have to be resolved before the plant economics can be accurately calculated is whether or not the petrochemical complex will rely for its feedstock on the Government's gas gathering system, yet to be constructed. According to a February 1975 announcement, the Government is to establish and operate an integrated gas gathering company that will "acquire and transmit gas to all gas-based projects." This is known to include the two planned natural gas liquefaction plants (See Chapter 4, "Petroleum"), but government officials say it is not certain that the petrochemical plant would have to use the gathering system. As of June 1975, there was no indication of what the cost of system-delivered gas would be.

Ethylene

A 300,000-tons-per-year ethylene plant is planned for incorporation in the Agip/Phillips natural gas liquefaction plant to be built on the banks of the Escravos River.

Carbon Black

There are unconfirmed reports that a relatively small-scale (\$16 million) plant will be constructed to produce carbon black from refinery residuals at the present Port Harcourt refinery. The factory would use a French process said to be economical at production levels as low as 5,000 tons.

Fertilizers

There was no domestic production of fertilizers in 1975. However, a \$115-million nitrogenous fertilizer plant is planned to manufacture 450,000 metric tons of ammonia and 260,000 tons of urea per year from the tailgas from the petrochemical complex. Scientific Design of London has been selected to draw the specifications, which also

may be used to construct a second fertilizer plant in Mid-West State, should expected demand justify it.

MARKETING APPROACHES

Most major manufacturers of chemical equipment consider the Nigerian market too small to justify the establishment of local agents and

distributors. Foreign sales representatives do meet with potential purchasers during periodic visits to Nigeria. Most orders are placed directly with the overseas manufacturer.

Most firms advertise nonprescription pharmaceuticals and cosmetics by radio, television, posters and sound-trucks which travel the rural areas selling products. Pharmacists handling ethical drugs visit doctors and hospitals to discuss new products.

Chapter 17 CONSTRUCTION MATERIALS

HIGHLIGHTS

Nigeria's need for building materials will accelerate markedly as the *Third National Development Plan* is implemented. To meet immediate and future needs and reduce dependence on imported construction materials, both Federal and State Governments and private interests will spend up to \$1.5 billion during the 1975-1980 period for machinery and equipment to be used in the manufacture and fabrication of construction materials, particularly cement and iron and steel.

The Nigerian Government will also invest \$1.6 billion to establish a new iron and steel industry. The cement industry is expected to receive investments of \$400 million from government and private sources during the Third Plan period. Finally, government and private investors will spend a total of \$200 million for capital equipment in various industries such as brick refractories, combination sheet and bottle glass factories, ceramics, paint, galvanized pipe and roofing, timber, and aluminum.

Excellent sales opportunities also exist for most kinds of finished or semifinished building materials. This market is expected to continue to grow at an average annual rate of 50% and by 1980 could total over \$1 billion in sales. Particularly good sales prospects exist for cement, galvanized pipes and tubes, sanitary wares, sheet glass, insulation, wallpaper, and floor covering.

SECTOR ANALYSIS

There are a number of diverse industries, public and private, which are users of construction materials equipment. Although not covering all building materials, the latest (1972) *Survey of Manufacturing Establishments* illustrates the size of the markets for brick and tile, cement, concrete products, paints, and structural metal products (see table 17.1).

Trade sources estimate that overall sector growth averaged 10-15% annually between 1972 and 1974. Even at these increments, the demand for many materials far outstripped the capacity of local plants. During the Third Plan period, annual growth rates of over 20% are projected for the cement, glass, ceramics, building bricks, paint,

and aluminum fabrication industries. The corrugated roofing industry is predicted to have a 10% annual growth rate, while the timber industry may expand at a rate of 4% per year. (Further information is contained in Chapter 24, "Forestry and Wood Processing.") New industries such as galvanized steel, cast iron pipe fabrication, and sanitary wares can expect high levels of growth once they get into full production.

By the end of the Third Plan period construction materials manufacturers should increase their overall share of total Nigerian manufacturing output from an estimated 12% in 1972 to 18 or 19% in 1980. Employment is expected to almost double from its current level of 20,000 workers. Estimates of Nigeria's building materials requirements for 1976-1980 are given in Appendix 17.1.

Iron and Steel

According to the Third Plan, the equivalent of \$1,650 million in Federal funds has been allocated for the following:

1. *Blast Furnace Complex.*—The Nigerian Steel Development Authority (NSDA) is planning an installation in Ajaokuta of blast furnaces with annual capacity of 1.5 million metric tons at a cost of \$1.3 billion. Ajaokuta is near Itakpe and Lafia where iron ore and cokable coal deposits are located. Commercial production is targeted before the end of the planning period (1980).
2. *Direct Reduction Iron Works.*—The Government is encouraging the establishment of two direct-reduction plants utilizing natural gas with an annual capacity of up to 500,000 million metric tons each. A joint venture with foreign investors within the limits of the "Indigenisation Policy" is a distinct possibility considering the required technology (see Overview).

Cement

A second major investment will be in Nigeria's cement industry. Public and private interests expect to spend \$400 million for the expansion of the country's five major cement plants and the establishment of five additional facilities, including works of 600,000 metric-ton-capacity at Yandev, Ashaka and Shagamu. The Nigerian Government proposes to expand cement production from a current annual level of 1.4 million metric metric tons to at least 4.0 million tons by 1979.

Table 17.1.—Building supplies manufacturing, 1972

Industry	Number of Establishments	Number of Employees	Gross output (in thousands of U.S. dollars) ¹	Net capital expended
Brick and tiles	12	684	1,725	505
Cement	5	3,218	42,266	6,936
Concrete products	21	2,819	23,178	1,978
Paints	6	756	16,599	1,158
Structural metal products	32	3,639	51,438	2,544

1. Exchange rate used: 1 Nigerian pound = U.S. \$3.04. (The Naira, equal to one-half Nigerian pound, was introduced in 1972.)

Source: 1972 *Survey of Manufacturing Establishments*, Federal Office of Statistics.

Others

Over 20 generally small-scale industries, sponsored by the various states and built and managed with the aid of foreign partners, are also scheduled for development. Emphasis is being placed on the construction of 10 brick refractories with equipment needs ranging from agitators to tunnel kilns, and 3 combination sheet and bottle glass factories with equipment requirements ranging from culling equipment to stocking systems. Four new ceramics plants will require equipment ranging from clay washers and mixers to dryers.

Direct Foreign Investments

Many manufacturing companies in Nigeria were organized by foreign firms and are still partially owned by these firms. Purchasing policies naturally tend to reflect this relationship.

Since 1970 the West Germans, joined more recently by the Italians, have made the most extensive and concentrated investment efforts in construction materials manufacturing. Excluding cement plants and the plant industry, where the British remain very active, the West Germans and Italians have invested almost \$25 million since 1972-73 in the construction materials manufacturing sector. The German share is estimated at \$20 million.

Neither country has concentrated in one industry. The Germans, in addition to investments in cement, have been active in the galvanized pipe, corrugated roofing sheets, reinforcing steel, asbestos cement and sanitary wares industries. The Italians have invested in or are looking into the reinforcing steel, the asbestos cement, the ceramics and sanitary wares industries.

The British, making good use of their long-standing presence and close contacts with most of the more important importers, continue to dominate the cement, bitumen, timber, paint and household aluminum products manufacturing industries. In terms of the actual value of invest-

ments, they remain by far the most important foreign investors.

While the Japanese have been making significant economic inroads in Nigeria ever since the end of the Nigerian Civil War in 1970, they have had little impact within the building materials sector as far as plant investment or equipment is concerned. They have concentrated for the most part on selling raw or semimanufactured materials, in particular, making use of their competitive advantage in cold rolled steel. Nippon Steel, Yodogawa and the Fuason Group are planning, however, to expand their capital investment in Nigeria's corrugated roofing sheets industry.

The aluminum industry remains about equally divided between Flag Aluminum, the Canadian subsidiary of Alcan Aluminum, and Aluisse of Zurich's two Lagos-based affiliates, Alumaco and NIGALEX. The Swiss are also involved in the important Swiss-Nigerian Wood Industries, Nigeria's second largest producer of timber products. Dutch and Belgian firms are actively investigating capital investments in the brick refractories tentatively scheduled for construction before the end of 1980.

The Hungarians appear to be making investments in the glass manufacturing industry. The Yugoslavs and Bulgarians have also been considering investments in building supplies.

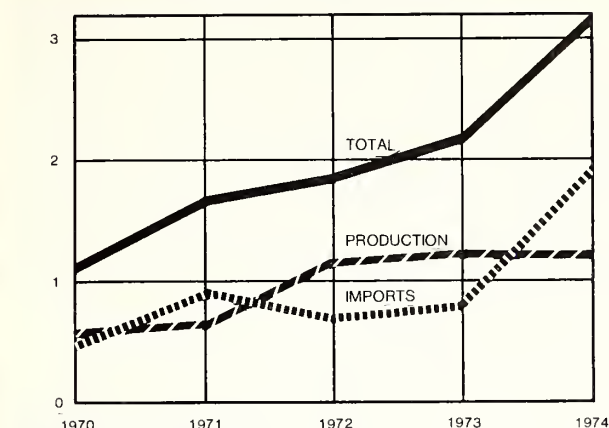
Market Profiles

Market profiles of selected construction materials producers follow. Addresses of these companies are provided in Appendix 17.2.

The Nigerian Steel Development Authority

The Nigerian Steel Development Authority (NSDA) was established by Degree Number 19 (April 1971) with a mandate to establish an iron and steel industry in Nigeria. Official members of the Authority include the Permanent Secretary to

**FIGURE 17.1—Production and imports of cement
1970-1974** (in millions of metric tons)



Source: Federal Office of Statistics, Lagos

the Federal Ministry of Industries, who is also the Chairman; the Permanent Secretary, Federal Ministry of Mines and Power; the Secretary for Finance, Federal Ministry of Finance; the Deputy Permanent Secretary to the Federal Ministry of Economic Development; the Deputy Permanent Secretary to the Federal Ministry of Trade; the Head of the Engineering and Chemical Division of the Federal Ministry of Industries, and the Chief Executive Officer of the Authority, who is also the Project Manager. This project was still in the planning stage as of fall 1975. The Authority is interested in talking with project and/or engineering consulting firms as well as manufacturers and suppliers of plant and equipment, transport equipment, power generating equipment, materials handling equipment, and other equipment and components that are required in iron making, steel making and casting, rolling of sections, flats, making of pipes and tubes, and in related fields like refractories making, mining, ore dressing, coking and laboratory work.

Nigersteel Company Limited

Nigersteel, the country's first steel fabrication plant, was totally destroyed during the 1967-70 Civil War. The plant is being rebuilt, and officials hoped to begin production at the end of 1975. Assisted by West German technical partners and primarily using West German equipment, Nigersteel plans to produce 24,000 metric tons of steel reinforcing rods annually. Over 700 Nigerians will be employed once full production is reached. The company intends to appoint a distributor and market its product throughout Nigeria. The East-Central State Government owns majority of the company's stock (51%) with most of the remainder held by private Nigerian interests.

Current equipment needs include materials handling equipment such as small cranes and forklifts.

West African Portland Cement Company, Ltd.

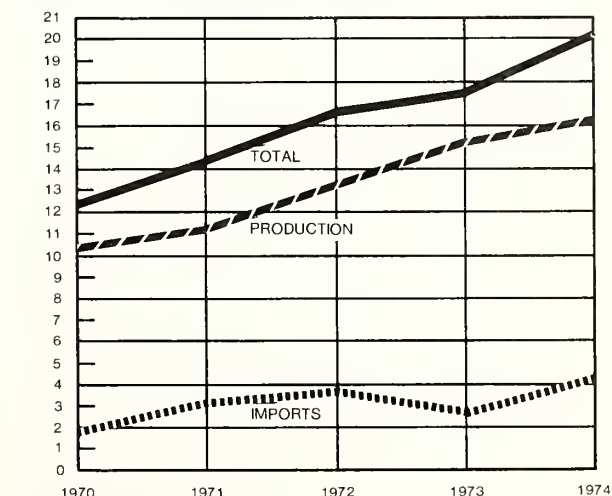
West African Portland Cement has been producing high quality cement in Nigeria since 1960. Set up by Associated Portland Cement of London, which retains around 40% interest in the firm, West African was the first of Nigeria's existing five cement companies and remains the largest single producer. It operates out of a modern plant at Ewekoro, Western State, about 40 miles north of Lagos. Total plant capacity is 800,000 metric tons and current annual production is about 700,000 metric tons.

Most of the major equipment at West African is of British origin, purchased through Associated Portland Cement, which acts as a consultant. American firms that supply equipment include Caterpillar and Terex (earthmoving equipment); Allis-Chalmers and Fuller-Kenyon (pumps from their U.K. subsidiaries); DuPont (gellingnite); and Gardner-Denver and Ingersoll-Rand (drills—also via the United Kingdom).

With the exception of a few kiln rollers from France, suppliers from the United Kingdom will also provide the capital equipment needed for West African's \$197-million, 600,000-metric-ton capacity plant, scheduled to open at Shagamu, Western State, in late 1977. Associated Portland Cement also has won the supply and consultancy contract for the 600,000-metric ton cement plant to be built by 1978 at Ashaka in Nigeria's North-Eastern State.

In addition to Associated Portland Cement,

**FIGURE 17.2—Production and imports of paint
1970-1974** (in millions of litres)



Source: Federal Office of Statistics, Laos

other shareholders in the company in 1975 included the Western State (32%), the Federal Military Government (20%) and the United Africa Company of Nigeria Ltd. (8%). Employees numbered around 1, 200.

Nigerian Cement Company Ltd. (Nigercem)

The Nigerian Cement Company (Nigercem), the second leading producer of cement in Nigeria, is also undertaking a major development program. The current capacity of the plant is 500,000 metric tons a year and is to be enlarged to 750,000 metric tons by December 1976. F.L. Smidth of West Germany, which is also involved in the Ukpilla and Yandev cement projects, is managing the \$40-million expansion. Costain (West Africa) Limited is performing the civil engineering. New plant equipment, like the original machinery, is from West German and other European Common Market suppliers.

Officials at Nigercem headquarters at Nkalagu in East-Central State indicated that further capital expansion might take place after 1976.

The few American products that Nigercem is presently using include kraft paper from Georgia-Pacific and Caterpillar earthmoving equipment.

The company spends about \$2.5 million annually for the replacement of obsolete equipment.

Shareholders in Nigercem include East-Central State (55%), the Federal Military Government (10%); Commonwealth Development Corporation (10%); private investors (25%). The company's current budget for 1975 was approximately \$35 million. Employees numbered around 1,000.

Nigerian Aluminum Extrusions Limited (NIGALEX)

Nigerian Aluminum Extrusions Limited (NIGALEX), Nigeria's first aluminum extrusion plant, opened on May 2, 1975. The new plant, located in Isolo Industrial Zone of Lagos, was established to meet the rising demand within Nigeria for all types of aluminum sections. Production capacity will reach 1,000 metric tons by 1976.

NIGALEX's equipment comes from both the United States and the United Kingdom. The plant's single extrusion press is from Wean United of Springfield, Pennsylvania. Walgren and Company of Ada, Michigan, supplied the company's other major piece of machinery, a 1,000-metric-ton-capacity anodizing plant.

Alusuisse of Zurich, a major shareholder in the company, supplies the aluminum billets needed for the extrusion press. Current supplies are shipped from Norway but NIGALEX is

investigating the possibility of alternative sources of supply.

The main sponsors of the \$4.8-million project are Swiss Aluminum Limited, Zurich (Alusuisse); Union Trading Company, Ltd., Basle (UTC-Basle); Nigerian Industrial Development Bank Limited (NIDB); National Insurance Corporation of Nigeria Limited, (NICON); Great Nigeria Insurance Company Limited; and the International Finance Corporation (member of the World Bank Group). Alusuisse is responsible for operating the plant and providing technical assistance.

Flag Aluminum Products Ltd.

Closely associated with Alcan Aluminum Ltd., of Montreal, Flag Aluminum operates Nigeria's only aluminum rolling mill. The Port Harcourt-based facility produces 6,000 metric tons of strip and sheet products annually. Around 80% (4,500 metric tons) of the plant's production consists of aluminum roofing sheets. The company is also interested in manufacturing aluminum doors and windows.

Most of Flag's equipment is of Canadian or British origin. B&K Manufacturing of Toronto supplied the rolling mill. American manufactured items include shears, snippers and punches from E.W. Bliss of Salem, Oregon.

African Timber and Plywood (AT&P)

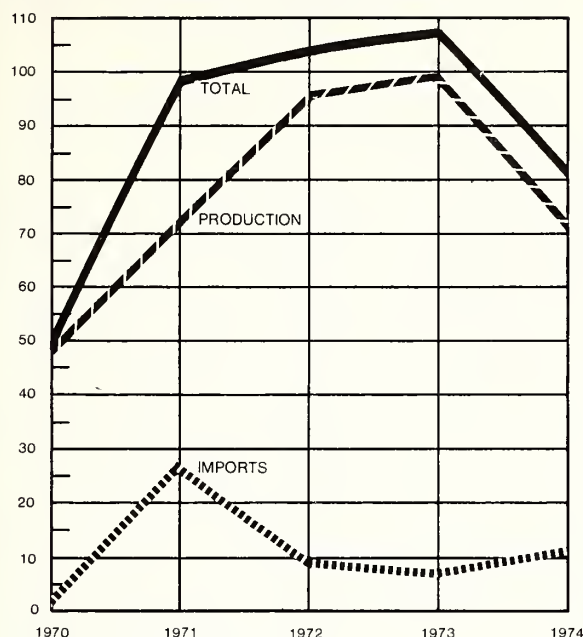
African Timber and Plywood, one of Nigeria's largest commercial enterprises, employees, is the country's largest timber company. Employing 3,000 people, it accounts for about 25% of Nigeria's production of processed wood. Headquartered at Sapele in Mid-West State, this division of the United African Company of Nigeria (a subsidiary of Unilever of the United Kingdom) produces a full-range of building components. The Custador flush door plant alone produces about 160,000 doors annually. AT&P also has a plywood mill of 77,000-m³-capacity and a sawmill with a capacity of 128,000 m³. Over 30 different timber products are manufactured. AT&P hopes to go into particle board production in the near future and has earmarked almost \$3 million for that purpose.

Reflecting its relationship with Unilever, most equipment found at the Sapele plant is from the United Kingdom or Holland. Ordering is done through the parent company's headquarters in London.

Asbestos Cement Products Nigeria Ltd.

Four companies operating six plants make up the asbestos cement industry in Nigeria. Two of

FIGURE 17.3—Production and imports of roofing sheets 1970-1974 (in thousands of tons)



Source: Federal Office of Statistics, Lagos

the companies, Asbestos Cement Products Nigeria Ltd. of Lagos and Sapele and Turner's Asbestos Cement of Enugu and Kaduna, are subsidiaries of the important world producers, Eternit of Belgium and Turners of the United Kingdom, respectively. The other two firms, which were just beginning production in the latter half of 1975, are U&K Asbestos at Otta in Western State (organized by Nigerian businessmen with West German participation) and Asbestonit, located at Oron (a joint venture of the South-Eastern State Government and Italian interests).

Nigeria National Supply Company Ltd. (NNSC)

The Nigeria National Supply Co. Ltd. is a nonprofit Federal Government agency established to procure commodities which are in short supply in Nigeria and resell them at locally fixed prices. NNSC's 1975 buying activities were centered exclusively on foodstuffs and building materials (especially cement).

The procurement process is generally as follows: the NNSC will solicit bids from prequalified suppliers around the world for a given product. When the bids come in, they are screened to ensure that all prices fall within an "acceptable price range." The most favorable bids are then sent to the Federal Tenders Board for approval. Procurement then follows, usually through agents.

In submitting bids, the supplier should include the name and address of his banker,

shipment/delivery dates, and demurrage costs. Demurrage costs are not to be more than \$4,000 per day for a shipment of 10,000 metric tons. If the shipment were less than 10,000 metric tons, a rate of 40¢ per ton would apply.

EQUIPMENT & MATERIALS REQUIREMENTS

Of the \$1.5 billion that will be spent on construction materials equipment, 87% has been earmarked for the development of two industries: iron and steel, and cement. Within the iron and steel industry, roughly \$790 million will be spent for materials and equipment needed to construct and operate a 1.5-million ton blast furnace. In addition NSDA is planning two direct reduction process plants of 500,000 metric tons each (see National Steel Development Authority under Sector Analysis). Over 95% of the capital goods, materials and professional services needed to get the NSDA plants in production will have to be imported. Detailed equipment and machinery needs will become known as the Nigerian Steel Development Authority proceeds to formulate its development program.

The equipment requirements of the 20 small-scale industries discussed in Sector Analysis are:

Equipment needs for brick-making, clay-working, and ceramics industries

Agitators	Auger machines
Balls, porcelain grinding	Blungers
Clay washers	Crushers —jaw, roll, reduction and muller
Cutters—hydraulic brick and tile	Dry presses
Dryers, rotary	Enamelling machines
Fans, kiln and stack	Filter press pumps
Jiggers, pulldown and oval	Hammer mills
Kiln cars	Kilns, electric and gas
Mixers, clay	Kiln, rotary
Pans, wet and dry	Mixers, slip and glaze
Portable mixers	Pebble and ball mills
Pumps, slip and glaze	Pug mills
Tile dies	Slip screens
Tunnel kilns	Tile spraying machines
Mixers, enamel	Tile presses

Equipment needs for the paint industry

Agitators	Centrifuges
Clarifiers	Crushers
Grinders	Mixers
Tanks	

Equipment needs for the glass industry

Batch chargers	Beveling equipment
Drilling equipment	Cutting equipment
Edging equipment	Grinding equipment
Polishing equipment	Sheet-handling equipment
Glass level control equipment	Gob feeders
Lehrs	Lehr stackers
Refractories	Stacking systems

Equipment needs for the aluminum industry

Anodizing machinery	Cranes and hoists
Generators	Polishing equipment
Shearing equipment	Slitting equipment
Straightening equipment	Stretching equipment

Equipment needs for the cement industry

Dry process	Coolers
Pumps, slurry	Silos, blending and storage
Conveyors, drag-chain, belt, and air-slide	Crushers
Pulverizers	Hammer mills
Screens, rotary	Packing machines
Drilling equipment	Explosives (gelignite)
Earthmoving equipment (bull-dozers, power shovels, scrapers, bucket-loaders; dump-trucks, etc.)	

Building Materials

In spite of the ambitious plans for industrial expansion and modernization described earlier, Nigeria will have to continue to import immense quantities of finished and semifinished building materials. Active demand for building materials is expected to continue to double every 2 years and by 1980 could reach \$1 billion annually.

Not only will imports be needed to fill the wide gap between local production and demand, but Nigeria's double-digit inflation is making builders even more cost-conscious in their search for new materials. Despite the higher shipping costs from the United States, constructors' concern for speed and labor-saving features creates a substantial and rapidly expanding market for American building materials. They are also interested in new products which would represent a cut in material costs when compared with obsolete products. The combined market characteristics of a very limited range of locally produced products and the zoom in construction result in the demand for imported construction materials being of exceptional breadth and magnitude. Export opportunities are not therefore limited to the following lines mentioned by contractors as having good sales potential for U.S. firms who can meet the delivery requirements and provide replacements, as necessary, promptly; floor coverings, wall systems, ceiling suspension systems, prefabricated steel and steel-framed structures for warehousing, sanitary ware, and electrical wiring devices. Appendix 17.1 provides estimates of national requirements and domestic production for major construction materials as seen by Nigeria's national planners through 1980.

COMPETITION

Because of the diverse and competitive nature of the construction materials equipment sector,

no single country dominates the import market. Certain countries and suppliers have, however, developed a competitive advantage within a particular industry or manufacturing firm.

MARKETING APPROACHES

Construction materials manufacturing firms in Nigeria are either government or privately controlled (often with government participation). Government-controlled firms make their own purchasing decisions, often with the advice of a foreign technical partner. Privately controlled firms are either indigenously managed or managed by representatives of a foreign parent company. At the present time there are more foreign-controlled private companies than any other class in this sector.

When dealing with private sector firms controlled by foreign companies, American exporters should keep in mind that major purchasing decisions often are not made by local plant managers but rather by officials of the firm's parent company. In decentralized foreign-owned firms—and, of course, those in which the Nigerian Government and Nigerian businessmen are actively involved, purchasing decisions are increasingly being made in Nigeria. However, even where the home office abroad has the final say, resident managers are consulted and normally have an important input to make. There is no hard and fast rule about whom to contact, but initial inquiries generally should be addressed to the managing director or commercial manager.

There is a tendency among Nigerian companies to deal with known suppliers, unless there is a major overriding consideration such as delivery time. Few Nigerian companies rely upon competitive tenders to purchase equipment. However, tenders are more prevalent when the parent company does the ordering or when international loans require it. Most machinery and equipment is ordered directly from the supplier; importing firms are rarely relied upon. On April 1, 1975 Nigeria officially turned to the normally acceptable international commercial practice in payment for imports. Thus prepayments on the basis of letters of credit are permitted, as well as payment for imports upon receipt of shipping documents. Delays in the release of foreign exchange are common.

No special tariff barriers exist with regard to American exports. Nontariff barriers such as import quotas or local content restrictions are surfacing as new industries are commissioned. Importers are still required to obtain from the Ministry of Trade a certificate of clearances for industrial machinery and equipment worth over \$164,500. Information regarding Nigeria's duties

applicable to specific products may be obtained from the Country Marketing Manager—West and Central Africa, Office of International

Marketing, U.S. Department of Commerce, Washington, D.C. 20230 or from any Department of Commerce District Office.

Appendix 17.1.—Building materials requirements with domestic production as percentage of total needs, 1975–80¹

Product	Unit	Quantity					1975–80	Percent domestic
		1976	1977	1978	1979	1980		
Cement	million tons	2.7	3.7	4.6	5.6	6.5	23.1	55
Reinforcement	million tons	.7	.9	1.2	1.4	1.7	5.9	10
Construction timber	million cu. ft.	17.8	23.8	29.7	35.6	41.6	148.5	95
Joinery timber	million cu. ft.	5.0	6.7	8.4	10.1	11.7	41.9	90
Structured steel-work	thousand tons	93.7	124.9	156.1	187.3	218.6	780.6	10
Galvanized pipes	thousand tons	14.7	19.6	24.5	29.4	34.3	122.5	25
Copper pipes	thousand tons	1.0	1.3	1.6	1.9	2.3	8.1	0
Aluminum profiles	thousand tons	2.3	3.1	3.8	4.6	5.4	19.2	70
Rolled steel section	thousand tons	34.6	46.2	57.8	69.3	80.9	288.8	10
Asbestos cement pipe	thousand tons	25.5	34.0	42.6	51.1	59.6	212.8	95
Cast iron pipes	thousand tons	9.7	13.0	16.2	19.4	22.7	81.0	10
Steel pipes	thousand tons	7.6	10.1	12.6	15.1	17.6	63.0	10
Felt roofing	thousand tons	10.3	13.8	16.2	19.4	22.7	81.4	0
Asbestos cement roofing	thousand tons	37.2	49.6	62.0	74.4	86.8	310.0	95
Aluminum roofing	thousand tons	41.8	55.7	69.6	83.5	97.4	348.0	35
Ceramic floor tiles	million sq.yds.	4.5	6.0	7.5	9.0	10.5	37.5	10
Ceramic wall tiles	million sq. yds.	3.4	4.6	5.7	6.9	8.0	28.6	10
Fiber ceiling sheets	million sq.yds.	4.0	5.4	6.8	8.4	9.6	34.2	10
Glass	million sq. ft.	17.7	23.6	29.5	35.4	41.4	147.6	30
Paint	thousand gal.	748.0	998.0	1, 247.0	1, 497.0	1, 746.0	6, 236.0	80
Lavatory basins	thousands	92.0	122.0	154.0	185.0	215.0	768.0	25
Sinks	thousands	15.0	20.0	25.0	31.0	36.0	127.0	20
Water closets	thousands	85.0	114.0	142.0	171.0	199.0	711.0	20
Urinal bowls	thousands	27.0	36.0	45.0	54.0	63.0	225.0	20
Steel sinks	thousands	670.0	894.0	1, 118.0	1, 341.0	1, 565.0	5, 589.0	0
Steel or iron baths	thousands	601.0	803.0	1, 003.0	1, 204.0	1, 405.0	5, 016.0	0
Bitumen	thousand tons	475.0	633.0	792.0	950.0	1, 108.0	3, 960.0	5
Aggregates	million cu.yds.	23.7	31.5	39.3	47.2	55.0	196.7	100

1. Years ending March 31.

2. Derived from *Third National Development Plan 1975–80*.

Source: *Third National Development Plan, 1975–80*.

Appendix 17.2.—Selected list of Nigerian building materials manufacturers

P.O. Box 331 Enugu, East Central State Nigeria	The Project Manager Nigerian Steel Development Authority 138/146 Broad Street P.M. Bag 12015 Lagos, Nigeria
The General Manager Nigerian Aluminum Extrusions Ltd. P.M. Bag 1275 Ikja, Lagos, Nigeria	The General Manager Nigersteel Co. Ltd. P.M. Bag 1229 Enugu, East Central State Nigeria
The Commercial Director Flag Aluminum Products Ltd. Wesley House, Marina, Lagos, Nigeria	The Commercial Director West African Portland Cement Company Ltd. Elephant House Mile 7-1/2 Lagos, Nigeria
The General Manager African Timber and Plywood Sapele, Nigeria	The General Manager Nigerian Cement Company Limited
Commercial Controller Nigeria National Supply Company 160 Awolowo Road Lagos, Nigeria	

Chapter 18

TEXTILES

HIGHLIGHTS

The textile industry is Nigeria's largest manufacturing industry both in value of production and employment. It has modernized, improved and expanded its production facilities since the *First National Development Plan* of the late 1960s. With the inauguration of the *Third Plan (1975-80)*, the industry should enter a new period of stability and growth. Federal and State Governments, supplementing considerable private investments, plan to invest nearly \$40 million in capital improvements for the industry by 1980.

Of critical importance to the industry's growth is the reliable supply of imported natural and synthetic fibers. Prior to 1971, restrictions on imported materials had caused many factories to curtail their operations.

Leaving it to European and Japanese suppliers, U.S. manufacturers of textile equipment have generally neglected this market. Industry sources now foresee a possible U.S. market share of 30% in the next few years. Of course, this is assuming U.S. firms wage sufficient sales efforts.

EQUIPMENT REQUIREMENTS

Government statistics place imports of textile equipment, including industrial sewing machines and parts, at over \$13 million in 1972, \$33 million in 1973 and \$40 million in 1974.

Large mills increasingly prefer integrated operations. Equipment requirements include spindles and automatic loom sets, folding and boiling equipment, and dyeing, printing and finishing equipment, package-dyeing equipment (for staple fiber yarn and textured polyester filaments), defect counters, staple-spinning machinery (for open-end spinning course yarns, up to 20-1 cc), texturing equipment, and pressure piece dyeing equipment (for level dyeing knit and woven polyester).

Equipment sales are expected to expand rapidly during the 1975-80 Third Plan period because of the expansion and modernization of private mills and the government textile projects discussed later in Sector Analysis.

High capacity machinery is made feasible by the country's willingness to import large quantities of natural and synthetic fibers to be used in local

production of textiles. In spite of government efforts to promote local production of such staples as cotton and jute, local textile mills remain highly dependent on foreign cottons and jute fibers since demand continues to outpace domestic fiber production. Nigerian authorities report fiber imports rose from over \$21 million in 1972 to nearly \$75 million in 1973 and over \$160 million the following year. Synthetics account for roughly three fourths of all fiber imports.

Best import possibilities are for synthetic fibers, yarns and thread. U.S. manufacturers of piece goods such as cotton blends and synthetic and knitted material will find a good market as will manufacturers of lace and embroidered goods.

COMPETITION

There is no local production of textile equipment in Nigeria. Spindle and loom sets are imported from Japan (Toyoda) and Switzerland (Ruti, Bikenol, Susa). Warp-knitting equipment comes from Germany, (Meyer) the United Kingdom (Platte) and East Europe (Luba). Double-knit machines are imported from Germany (Morat), the United Kingdom (Bentley, Miller Brownley) and France. Other processing equipment is imported mainly from Switzerland and Germany. U.S. manufacturers in the last 3 years have captured 10-15% of the machinery market and less than 5% of the parts business. Nigerian purchasers say that these market shares could rise substantially in the not too distant future. American textile equipment now in demand includes automatic spindle and loom sets.

To be successful in this market, exporters must remain flexible and able to adapt to Nigerian purchasing, payment and credit conditions. Manufacturers repeatedly mention the flexibility of the Japanese, who in some cases reduce their prices, give up to 5-year credit, select good agents, provide after-sales service, and make available spare parts.

Since the relaxation of tariffs on textile staples in 1971, the Nigerian market has been flooded with imports of fibers, yarn, thread and piece goods from Japan, the Peoples' Republic of China and the United Kingdom. The U.S. import market share has averaged 3% to 4% a year, mainly in synthetic fibers.

Until recently imported fabric has been of higher quality than competing domestic piece

Table 18.1 — Nigerian textile production, 1972–75 and 1980

Type	Unit	1972	1973	1974	1975	1980
Prints	000 m ²	118, 699	148, 730	146, 877	160, 000	180, 000
Drill	000 m ²	14, 875	12, 572	8, 876	8, 400	6, 400
Baft	000 m ²	21, 800	51, 775	55, 105	66, 000	137, 000
Shirting	000 m ²	34, 882	78, 463	63, 901	77, 000	189, 000
Synthetic fabric	000 m ²	5, 564	9, 616	21, 408	26, 000	79, 000
Knitted fabric	000 metric tons	1, 399	2, 274	2, 321	3, 700	8, 000

Source: 1972–74, Federal Office of Statistics, Lagos; 1975 and 1980, Commerce Survey Team estimates based on opinions of major textile manufacturers.

goods. Domestic manufacturers are, however, improving the quality of their material and are able to offer a greater variety of fabrics.

SECTOR ANALYSIS

The Nigerian textile industry prospered during the Civil War (1967–70) because it was in a seller's market insulated from imported cotton fiber, yarn, thread and fabric to conserve foreign exchange.

Large textile mills were established in the north at Kaduna and Kano, and in the south near Benin City and in the Lagos area. While the industry grew rapidly, production was irregular due to recurrent shortages of local cotton, power, and water. Thus, textile workers were often laid off for months at a time.

To ameliorate this deteriorating situation, the Government eliminated all import restrictions in 1971, with the exception of short-staple cotton, which can be imported only under special government license. With ample supplies of imported fiber, factories can theoretically continuously produce cotton-blended baft, synthetic shirting and suiting, and knitted material.

However, in spite of the improved availability of materials, productivity in Nigerian textile mills remains disappointingly low, and factories still work at less than full capacity. Even though protected by tariffs, local producers have trouble competing with imported cloth because of the limited size, inefficiency and obsolescence of their plants and equipment, among other things. Thus, textile mill owners seek more efficient machinery.

As of early 1975, 68 large Nigerian textile mills employed 60,000 workers. Their principal owners are Chinese, Japanese and Indian.

The market size for textile piece goods is approximately \$136 million and is expanding rapidly.

Among the leading Nigerian textile mills are:

Nichemtex Industries Ltd., Lagos.—Employs 4,700 persons at 48 sets of spindles and 756 automatic looms. The company produces 100 million meters

of baft yearly, mostly from Japanese fiber, which is then dyed and finished at subsidiary plants in Nigeria. Nichemtex is currently constructing its own fiber plant.

Nigerian Teigrin Textiles Ltd., Lagos.—Employs 1,200 workers at 10,000 spindles and 220 loom sets in a fully integrated operation. The firm produces synthetic shirting and suiting.

Dalamal Textile Mills, Lagos.—Produces 3.5 million square meters of synthetic piece goods yearly and uses fibers imported from France, Japan, and Brazil. Dalamal plans to spend \$4 million for expansion, including 100 Ruti looms from Switzerland. It is interested also in American equipment.

Bhojsons Industries Ltd., Lagos.—Produces 20,000 yards of polyester-cotton blend shirting and suiting daily. The company has recently expanded into the printed knit market.

Arewa Textiles Ltd., Kaduna (North-Central State).—Produces 50 million yards of dyed and printed cotton fabric and 30 tons of knitted cotton fabric yearly in a fully integrated operation, using 55,000 spindles 1,710 looms and 3 sets of printing machines. The company plans to enter the market for synthetic textile piece goods.

Kaduna Textiles Ltd., Kaduna.—Employs over 1,500 persons. The machinery used is British. Kaduna produces 6,000 yards of synthetic shirting and suiting daily from British, Japanese and Swedish fibers.

Federal Government Projects

The Federal Government plans to establish a commission dealing exclusively with export promotion as a means of encouraging private and official expansion projects in the industry. At present, all mills are managed by foreign nationals, with increasing assistance of Nigerian employees. The Government's Indigenisation Policy is expected to gradually change this situation.

The Federal Government plans to invest over \$6.6 million to encourage production of industrial fibers, chiefly cotton, jute and kinaf. These projects include the establishment of jute and cotton plantations, costing approximately \$1 million each, and distribution of improved seeds.

State Government Projects

The governments of the individual States have ambitious expansion projects totaling roughly \$30 million under the *Third National Development Plan*. Some of these projects are:

East-Central State.—Construction of a polyester filament factory to manufacture initially from petrochemical waste coming from local refineries. The project should be in operation by 1978. Planned expenditures are close to \$5 million.

Kwara State.—Construction of a textile mill at an expenditure of \$12.6 million. This mill should be in operation by 1978.

Midwestern State.—Modernization of the Midwest Textile Mill in Asaba, involving purchases of new equipment and replacement of used machinery at a planned expenditure of \$2.4 million.

North-Central State.—(a) Plans to set up a silk plantation at a cost of \$324,000; (b) Construction of a jute-carpet manufacturing industry at a cost of over \$1.6 million; (c) Joint venture between the State and private industry: construction of the Sokoto Textile Project to manufacture several lines of fabric, including shirting, suiting and embroideries. Plans call for an expenditure of \$1,134,000. The project should be operational by 1978; and, (d) Construction of a fiber factory to produce jute bags, twills, etc. This is planned as a joint venture between State and private industry at a cost of \$486,000. The project should be completed by 1978.

South-Eastern State.—Construction of a textile complex consisting of a carpet factory, a silk-weaving factory, and a knitwear factory. The project should be operational by 1979, and expenditures will be \$8 million.

MARKETING APPROACHES

Textile mills buy foreign fibers either directly or

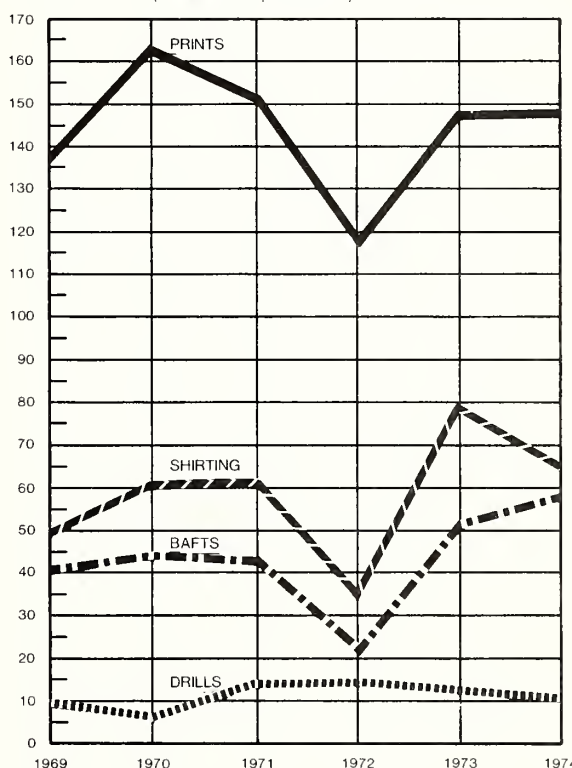
through import commission agents. There are approximately 20 major agents throughout the country who order and import material on a commission basis.

At the sales end of operations, mills either have their own group of distributors/wholesalers or sell to any wholesaler that approaches them for merchandise. They in turn sell to independent vendors who sell goods at marketplaces throughout the country.

Import duties on textile equipment are 50% of declared value. Import duties for synthetic fibers are 10% c.i.f. value, while most other fibers pay 33.3%. There are no preferential rates for any country.

FIGURE 18.1—Textile production 1969-1974

(in millions of square meters)



Source: Federal Office of Statistics

Chapter 19 PRINTING

HIGHLIGHTS

The continuing expansion and modernization underway in the Nigerian printing industry was expected to push the 1975 market for graphics equipment to over \$13 million (see table 19.1). The gradual conversion from lead to polymer plates and the introduction of phototypesetting has brought about a considerable change in the use of pre-press equipment. Graphic arts and platemaking equipment have been equally influenced by this change.

Many of the nationally known printers are upgrading quality and expanding their printing facilities. The Federal Government Printing Press, for example, is carrying out a general reorganization of its operations to increase its annual output of regularly printed publications from 150 to 260 titles.

The upgrading of the quality of the publications being produced by the Nigerian printing industry should result in new requirements for technically advanced equipment from the United States. Market penetration will be highly dependent on American firms selecting competent Nigerian equipment distributors and agents.

Use of the printed word as a means of communication has been limited in Nigeria by the level of literacy. In urban centers a little less than half of the population has been exposed to formal education; in rural areas the percentage is much lower. But among the literate population, a small steadily growing percentage of the people can afford the regular purchase of newspapers, magazines and books. And the implementation of Nigeria's Universal Primary Education (UPE) program will require a vast volume of new textbooks.

EQUIPMENT REQUIREMENTS

Sales of printing and graphic arts equipment in 1980 are forecast to exceed \$35 million, nearly triple the 1974 level of \$13 million. Types of equipment expected to offer good sales potential during the 1975-80 period are listed below:

Pre-press machinery equipment:

- Photographic typesetting machines, including computers
- Keyboard input devices

- Photocomposing equipment
- Platemaking equipment, including shallow relief plates (photopolymers)
- Optical character recognition equipment
- Facsimile transmission equipment
- Film processors

Press room and related items:

- Cutters
- Drills
- Specialized materials handling equipment
- Quality control equipment
- Pollution control equipment
- Ink mist suppression systems

COMPETITION

German and British manufacturers are the leading suppliers of printing and graphic arts equipment to the Nigerian market; each accounted for 39% of sales in 1973 (see table 19.2). Although imports have grown 1.5 times between 1972 and 1974, the combined market share held by these two countries has declined very slightly from 79% in 1971 to 76% in 1973. The U.S. share has remained the same—5% during the same period.

Pre-Press Equipment

In the optical field, U.K. and German high quality cameras dominate the market.

In platemaking, such items as film processors, lighting systems, color separation equipment, enlargers, and scanners, are primarily supplied by the United Kingdom, Germany, Switzerland, and Italy.

Heavier platemaking equipment provides a market for U.S. manufacturers. Equipment for offset platemaking comes mainly from European makers.

The use of gravure cylinder equipment is limited because of the high cost, and potential purchasers are limited to a few well-established commercial printers and the Government.

Color separation is a particularly difficult process for Nigerian printers to handle because of the shortage of competent technical personnel. In most instances, printers have color separation work done abroad. U.S. suppliers should find good sales opportunities for simplified color separation equipment which local printers could be readily trained to operate and maintain. However,

Table 19.1.—Imports of printing and graphic arts equipment, 1972–1975 and 1980
(in millions of U.S. dollars)¹

	1972	1973	1974	1975	1980
Typemaking and typesetting machinery	1.78	1.85	2.35	3.10	6.2
Presses and other printing machinery	3.77	3.62	4.56	5.52	11.2
Bookbinding machinery .....	.26	.42	.59	.75	1.5
Photographic and cinematographic equipment ² .....	.86	1.11	2.46	3.50	7.0
Parts and accessories ³	2.42	2.31	3.39	4.75	9.2
Total	9.09	9.31	13.35	17.62	35.4

1. Local currency data are converted at the following exchange rates: ₦1 = \$1.52 (1972 and 1973) ₦1 = \$1.629 (1974); ₦1 = \$1.645 (1975); U.S. dollar values extended to 1980.

2. Includes graphic arts equipment used by the printing industry.

3. For first three categories of machinery only; parts for graphic arts equipment are classified in Nigerian foreign trade statistics in a category too broad to be useful.

Source: 1972, 1973 and 1974 data based on official Nigerian trade statistics; 1975 and 1980 Commerce Team projections based on trade source estimates.

suppliers must be prepared to provide technical training.

Press Room and Related Equipment

A major share of the market for letterpresses is held by German manufacturers, although British and other European manufacturers have an established position. U.S. equipment is not generally known because it lacks local representation.

Web-fed letterpresses are being used for commercial and newspaper printing.

Rotary offset is used for color printing, although only a few of the leading newspapers appear to be potential end users.

Printing presses of the lithographic sheet-fed type are imported generally from the United Kingdom and Germany. Sales of web-fed lithographic presses are scarce because of their high capital cost. Such equipment should offer a promising market for U.S. manufacturers as the local printing industry moves toward modernization and a need develops for greater efficiency.

Bindery and Finishing Equipment

Most bindery equipment is imported from the United Kingdom and Germany. The market primarily uses manually operated cutters and trimmers, although opportunities should develop for manufacturers of automated equipment. A number of distributors import bindery equipment such as stitchers, sewers and drills from the United States. Although European manufacturers hold a leading position in the market, there are opportunities for U.S. inserters, perforators, gluers and pasters.

The average Nigerian printer sees merit in any equipment which will shorten the production time required for traditional gathering, collating and folding of printed materials. At present, only

the larger printing houses use any mechanized equipment for these services. There appears to be high sales potential for fast, yet relatively inexpensive bindery and finishing equipment.

Automated mailers, postage affixing machines, and wrapping machinery are currently used only by a few leading business houses. Very little interest in this type of equipment was expressed because of the difficulties of securing on-site maintenance service.

Other Printing Equipment

Specialized material handling equipment and quality control instrumentation are unknown in the printing trade. Pollution control equipment and ink-mist suppression systems have a potential market if adequately promoted by resident representatives.

SECTOR ANALYSIS

There were over 175 printing organizations in Nigeria in 1974, and they employed some 60,000 workers. About 60 printers employ more than 100 workers; nine employ more than 1,000 workers. These include the *Times Press*, the Federal Government Printer, and several of the larger State Government printers. Most of the 12 State Governments are interested in developing and expanding their newspapers for the effective dissemination of information.

Nigeria boasted 12 daily and 20 weekly newspapers, and 60 bimonthly and monthly journals and magazines at the end of 1974. Estimated aggregate circulation of daily newspapers was 800,000 and that of weeklies was 2 million. Magazine circulation for 1974 totaled 1.5 million, according to Grant Advertising International (Nigeria) Ltd.¹

Book Publishers

There are approximately 20 publishing companies in Nigeria which are chiefly foreign-owned. A number of these establishments are planning to install presses in Nigeria whereas most of their books formerly were printed abroad. The leading foreign-owned Africa-based publishing houses include the Oxford University Press, Pilgrim Books Limited and Heinemann Educational Books Limited. The leading universities and the State Governments constitute the major indigenous publishers. The private indigenous publishers produce mostly poorly finished paperbacks on a small scale for limited circulation within Nigeria. Most publishers have 100 to 1,000 employees.

Commercial Printers

Approximately 120 firms in Nigeria were engaged in commercial printing in 1974; their annual gross sales represent about 30% of the turnover in the printing and graphic arts trade. Sales by the commercial printers were \$8 million in 1974, and the sector at that time employed about 20,000 workers. Gross sales by commercial printers is expected to double over the next 5 years, in line with the high rate of growth in the economy generally.

The C.S.S. Press Nigeria Limited, the largest commercial printing firm in Nigeria, is a private company controlled by British and Nigerian businessmen. The firm produces stationery, calendars, school tablets, textbooks for primary and secondary schools and universities, business cards, light packaging, and envelopes. It does photoengraving, type casting, and letterpress and lithographic printing. The firm has approximately 500 regular employees and a large occasional staff hired during peak periods. The CSS Press has branch offices and bookshops throughout Nigeria for distribution of its books, publications and stationery products. Sales totaled \$1.2 million in 1973.

The firm purchases its equipment both directly from European suppliers and from distributors in Nigeria. The company has recently purchased a color scanner for color separations.

CSS Press has reported difficulty in recruiting technicians to handle its more intricate printing jobs. A German national has been employed to operate its color separation equipment. The company has organized a training program for its technical staff to update and develop their knowledge of printing technology.

Table 19.2.—Imports of printing and graphic arts equipment by country of origin, 1971–73

(in thousands of U.S. dollars)¹

	1972	1974	1974
<i>Typemaking and type-setting machinery</i>			
United States	325	96	187
United Kingdom	767	1,087	1,184
Germany	549	574	754
Other	143	96	220
<i>Presses and other printing machinery</i>			
United States	207	285	277
Germany	1,661	1,718	2,765
United Kingdom	1,403	1,007	1,095
Other	493	605	423
<i>Bookbinding machinery</i>			
United States	41	2	7
Germany	71	223	366
Switzerland	100	123	113
United Kingdom	21	64	44
Other	25	12	60
<i>Photographic and cinematographic equipment</i> ²			
United States	101	104	63
Germany	251	330	588
United Kingdom	253	239	911
Japan	105	222	212
Other	153	212	690
<i>Parts and accessories</i>			
United States	54	94	186
United Kingdom	1,283	1,146	2,000
Germany	731	727	796
Netherlands	142	70	108
Other	210	274	300
Total	9,089	9,310	13,350

1. Local currency data are converted at the following exchange rates: ₦1 = \$1.52 (1972 and 1973); ₦1 = \$1.629 (1974); and ₦1 = \$1.645 (1975).

2. Includes graphic arts equipment used by the printing industry.

Source: Data compiled from export statistics published by the Federal Office of Statistics.

Magazines and Periodicals

There are some 70 firms publishing and printing magazines and periodicals in Nigeria. They employ about 10,500 workers. Sales were approximately \$4.6 million, or 20% of the printing industry total in 1974. There are about 2 million copies sold annually.

In the last few years, the range and variety of periodicals has expanded to meet the needs of different social classes, professions, age groups and sexes. There has been an increase in the number of young Nigerian journalists who want to enter the publication business. The periodical trade appears to offer relatively good employment opportunities.

The problems of securing qualified technical staff for the periodical trade is a generally common problem of the printing industry. Several publishers by necessity contract out the production of their periodicals because they lack of in-house technical competence or because of their financial inability to purchase printing equipment. If sales could be financed over a medium-term period, i.e., 7 years, a large number of publishers could be potential buyers of equipment. Current expenditures in equipment, inks and chemicals for the publishing and printing of periodicals is estimated at \$4.9 million a year.

The Daily Times of Nigeria Limited, Lagos, prints several major magazines and daily and weekly newspapers. It has two daily newspapers: *Daily Times* and *Evening Times* with a total regular circulation of nearly 250,000 (see table 19.3). The circulation of its weekly publications are as follows: *Sunday Times* — 365,000, *Sporting Record* — 71,000, and *Lagos Weekend* — 242,000.

Headlines, which is a monthly publication, has a circulation of 35,000. Its other monthly magazines are: *Spear* (60,000 circulation), *Home Studies* (12,000), and *Woman's World* (30,000).

Table 19.3.—List of major publications, 1974

Daily	Circulation
Daily Times	213, 000
Evening Times	35, 000
Daily Sketch	60, 000
New Nigerian	40, 000
Nigerian Observer (Western State)	32, 000
Herald (Kwara State)	25, 000
Ride (Rivers State)	15, 000
Weekly	
Times International	30, 000
Sporting Record	60, 000
Lagos Weekend	260, 000
Sunday Times	365, 000
Sunday Punch	50, 000
Sunday Sketch	365, 000
Sunday Observer	40, 000
Sunday Renaissance	35, 000
Sunday Chronicle	15, 000
Nigerian Standard	15, 000
Nigerian Chronicle	20, 000
Monthly	
Drum	180, 000
Happy Home	15, 000
New Breed	10, 000
Spear	60, 000
Woman's World	30, 000
Afriscope	5, 000
Home Studies	12, 000
Management in Nigeria	5, 000
Quarterly	
Nigerian Nurse	2, 000
Pilot	2, 000
Express	2, 000
Nigerian Tribune	20, 000

Source: Nigerian trade source estimates.

The Daily Times is a wholly indigenous organization which currently has over 2,000 employees. The company owns 9% of the issued capital of Pilgrim Books Limited, educational book publishers. Plans are being made to increase participation in this venture, including the printing of its books.

The company has a wholly owned subsidiary, called Times Press Ltd., handling commercial printing and other business of the parent company. The Times Press, which started with letterpress machinery can now boast of sophisticated lithographic printing machinery. The firm can handle intricate color work, using fast two-color Roland and Heidelberg presses. Times Press is also equipped to produce books, magazines, light packaging and continuous stationery for the computer users.

Other Printing Establishments

The Federal Government owns 60% of the Nigerian Security Mint and Printing Company. The firm prints money and documents for the Government.

The Caxton Press (West Africa) Ltd. in Ibadan is a printshop of excellent reputation, using offset and letterpresses, including Heidelberg two-color equipment. It employs 240 people to print scientific, medical and educational books and sometimes smaller, local publications.

The Daily Sketch in Ibadan has a circulation of 60,000 throughout Nigeria and is owned by the Western State Government. They import its newsprint requirements and have a rotary press, imported from West Germany. The company planned to convert to letterpress before the end of 1975.

MARKETING APPROACHES

A successful marketing program in Nigeria requires a distributor or agent with the facilities and staff to reach a large number of end users throughout the country. An effective distributor must have the capability to maintain an adequate stock of spare parts and to provide after-sales service. American firms new to the market should seek out indigenous Nigerian companies that over the long term will be taking over an increasing part of the trade. To be successful, U.S. firms must be prepared to assist their distributors through training programs and promotional assistance.

Nigerian representatives also receive financial assistance from foreign printing equipment manufacturers such as revolving credits or

consignment merchandise until profitable operations can be established. In the formative period, most firms would benefit by having key staff members trained in the United States or by inviting U.S. personnel to Nigeria to train local

employees. Also local agents should be helped in establishing maintenance and service capabilities.

Most printing equipment is subject to a 40% import duty. No nontariff barriers exist on printing equipment.

Chapter 20

MANUFACTURED FOODS

HIGHLIGHTS

Although Nigeria's food processing industry is still relatively underdeveloped, it is one of the most significant contributors to the manufacturing sector, representing over 34% (or \$62 million) of overall sector production. Much of the food processing, however, is still limited to semi- or raw crop processing. Major efforts will be made during the Third National Development Plan period to diversify and further develop this sector. Toward this end, the Nigerian Government plans to invest some \$753 million in the food processing industry. These funds will be applied to sugar and confectionary processing projects, fruit and vegetable processing plants, grain mills, bakeries, beverage plants, fish and meat processors, and dairies. Significant sales prospects for U.S. suppliers of food processing equipment should stem from these expenditures.

Attention will focus in this chapter on bakeries and beverage plants which are the most significant and developed food industries in Nigeria. Raw crop processing, sugar refining and meat and dairy processing are treated in the next two chapters, under Agriculture.

The market for baking and beverage equipment was valued at \$4 million in 1974. Food industry experts predict that future investments in these subsectors should raise imports from \$6.5 million in 1975 to \$20 million by 1980.

The major countries supplying this market are the United Kingdom, Germany, Belgium, and Holland, with the United Kingdom having the largest market share—40%.

SECTOR ANALYSIS

Baking Industry

Nigeria's baking industry is considered the country's oldest food processing activity. It is primarily privately owned, although several State Governments operate bakeries. The major portion of the industry still operates with traditional production methods and produces primarily basic baking items such as white and dark wheat bread loaves. Cookies and crackers, sausage and hamburger rolls, and cakes (on special order) are also produced on a small scale.

Caught in a squeeze between rising costs and the Government-ordered freeze on retail bread prices, private bakers are expected to limit new investments over the next few years. Specialists, however, predict that increasing production costs will force many bakeries to utilize more efficient manufacturing methods.

At least one State Government will invest in this industry over the next 5 years. South-Eastern State plans to construct a cookie factory at a cost of \$777,360 during the Third Plan period. It will produce at least 420 tons of assorted wafers annually.

Consumption of baked goods has been estimated at over \$9 million worth annually and is expected to triple by 1980.

While there are an estimated 1,000 bakeries in Nigeria, only 173 employ over ten people. Of these, only 20 bakeries operate with semi-automatic equipment and only one is fully mechanized. Guthries too is planning to establish a fully automated bakery by the end of 1975.

The major bakeries, such as Olau Olu, Grace Bakeries, Odus Bakeries and Defacto Bakeries, produce a variety of items including white and dark wheat loaf bread in three sizes (8-ounce, 16-ounce, and 32-ounce), hamburger and sausage rolls, and cookies and crackers. French bread is also produced in significant quantities.

Less than 20% of the bread volume is sold in supermarkets. Large industrialized bakeries have their own sales outlets where most of their production of bread and other items are sold. A significant quantity of bread is sold by Nigerian traders (peddlers) and at neighborhood markets. Most bread sold this way comes from traditional, cottage bakeries.

Bakery bread prices are controlled by the Price Control Board, which, as of mid-1975, had limited the price of bread to a maximum of 32¢ a 16-ounce loaf. The price limitations and recent increases in raw materials costs have, as noted earlier, forced many of the more traditional bakeries out of business and caused others to limit production. Even so, experts in the field still feel that bakery production will continue to grow at a rate of 15% annually.

Demand for confectionery bakery items such as cookies and cakes is considered relatively small compared to other bakery items. There is only one major cookie factory in the country, Pioneer

Biscuit Factory. Cookie production was estimated at 34 million pounds in 1974, an increase of over 30% compared with production in 1970.

<i>Cookie production, 1970-74</i> (in thousands of pounds)	
1970	26,136
1971	28,481
1972	23,788
1973	28,481
1974	34,158

Equipment Requirements

While Nigeria's import bill for bakery machinery—including mixers, doughbrakes, slicers, sealers, ovens, dividers and molders—was less than \$1 million in 1974, experts expect imports to have reached \$1.5 million in 1975 and to jump to \$5 million annually by 1980.

Sales prospects should be particularly good for sealers, ovens and molders. Most Nigerian bakeries are labor intensive but have at least one molder. Moreover, there has been a recent trend to packaging bread in transparent wrappings, so that the item can be seen. This trend has escalated the demand for sealers used to secure such wrappings.

Though the major portion of Nigeria's loaf bread is unsliced, sliced bread is beginning to appear on the market. Bakers feel that this trend will continue. If it does, it should translate into substantial sales prospects for suppliers of bread slicing machines.

At present there is one significant supplier of bakery machinery in Nigeria (Guthries Nigeria Ltd.). While Guthries' main office is located in Lagos, it has six other branches throughout the country. Over 50% of the equipment sold by Guthries is of British origin. Its slicing machines, sealers and molders are all supplied by Mono-Universal (British). Its dough dividers are supplied by Robertson (also British) and its mixers are supplied by Tubautia (Dutch). In addition, Morton, a Scottish firm, supplies the company's dough brakes, and Matador, a German firm, supplies the ovens.

Beverage Industry

The beverage industry is one of the most important and most developed in Nigeria's food processing sector. Output is comprised primarily of beer and carbonated soft drinks, although several companies produce a variety of noncarbonated sweet drinks. At present, private firms dominate the industry. However, the Federal and State Governments are expected to construct a number

of beverage manufacturing plants, at a total cost of \$32 million, during the Third Plan period.

These planned expenditures could translate into significant sales prospects for U.S. suppliers of beverage production machinery. Such machinery used in Nigeria is imported. Trade sources expected annual imports to climb from \$3 million in 1974 to \$5 million in 1975 and to \$15 million in 1980.

Soft Drinks

Production of soft drinks in 1974 was estimated at 43 million gallons, almost triple the level of 15 million gallons achieved in 1972. Trade sources forecast that production will rise at an average rate of more than 16% annually through 1980, reaching a 79-million gallon level in that year (see table 20.1).

Nearly all the output at present is by private companies. The Nigerian Bottling Company, an affiliate of the Coca-Cola Company, controls about 70% of the soft drink market. Headquartered in Lagos, the firm has seven factories throughout the country. Its production includes Fanta products, Sprite, and Coca-Cola, as well as a number of noncarbonated drinks. The other large soft drink bottlers produce 7-Up, Pepsi-Cola, Mission of California, Rainbow and Ontsha.

There have been severe soft drink shortages throughout Nigeria within the last year, particularly in the urban areas. This has resulted primarily from increased demand and limited bottling capacity, in addition to the port congestion which has prevented access to such supplies as bottles and caps, the bulk of which are imported.

Metal Box Company Nigeria Ltd. recently opened the Tozo Glass Factory, which will produce bottles for soft drinks as well as for other products. In addition, during the Third Plan period the Western-State Government plans to construct a \$1.6-million glass factory which will have an annual output of 48,000 soft drink and beer bottles. The Kano State Government also plans to build an \$8.2-million factory, with an output of 50,000 tons of glass soft drink and beer bottles per year. Other States have similar glass factory construction plans for the next few years.

In an effort to accommodate rising soft drink demand, the Nigerian Bottling Company has begun a major expansion program which, when completed, should triple its present capacity. The company's Lagos plant alone produces 600,000 cases of soft drinks a month. Pepsi-Cola, which has not been operating in Nigeria for over a year, plans to reopen its Ibadan plant under a new franchisee.

Table 20.1.—Soft drink and beer consumption, 1970–74 and 1980

(in millions of gallons)

	1970	1971	1972	1973	1974 ¹	1980
Soft drink consumption ²	8.9	13.3	15.0	24.7	32.0	79.0
Beer consumption	28.1	35.2	45.1	57.6	65.0	286.0
Production	27.8	34.7	43.5	56.7	63.8	281.0
Imports .....	.3	.5	1.6	.9	1.2	5.0

1. Provisional statistics.

2. Consumption equals production.

Source: Federal Office of Statistics—Lagos, and Nigerian trade source projections.

Although the major investment programs in the soft drink industry are expected to be undertaken by private firms, at least four new soft drink manufacturing facilities are planned by the Federal and State governments for construction between 1975 and 1980.

Beer

Beer consumption was estimated at 65 million gallons in 1974, representing an average annual increase of 23% since 1970. Consumption is expected to rise at an even faster rate—28% a year—at least through 1980. Domestically produced beers and stout account for all but 2%–3% of consumption. However, domestic production is not keeping up with consumption, and more imported beer is needed to make up the shortfall.

The brewing industry is dominated by private companies. The largest of these firms, Nigerian Breweries, claims to account for close to 80% of domestic production. Nigerian Breweries markets the beer it produces in its three plants under the Star and Guilder labels, and imports Heineken beer. Star beer is the most widely sold, accounting for 60% of the total market for beer and stout. Other major beer producers include Northern Breweries (owned by the Kano State Government) and Guinness.

Nigerian Breweries' Lagos plant is equipped with German pasteurizers, carton conveyors, decasing and casing machines, labelers, and brew vessels (Holstein and Kappert, Gagenberg, Steinecker). It also has Danish bottle conveyors (Gearco), Belgian and Spanish tanks (Mexusa, Landaluc), and Belgian washers (Baele) and fillers (Crown Cork). An American firm (Witte mann) supplies the company with equipment for liquefying carbon dioxide.

Nigerian Breweries will be in the market for a significant amount of new equipment for a major expansion of its facilities in 1976 and 1977.

By 1980, Federal and State Governments will be actively involved in the brewery industry through the construction of several breweries around the country. The Government will also take part in the wine and spirits industry during this period.

Wines and Liquor

Most of the wine and liquor consumed in Nigeria presently is imported. The East-Central State Government plans to construct an \$800,000 distillery which will have an annual capacity of some 30,000–40,000 cases. In addition, the South-Eastern State Government plans to build a \$740,000 cocoa wine factory with a yearly capacity of about 570,000 gallons. The other indigenous alcoholic beverage currently produced in the country is palm wine, which is not sold on a large commercial basis.

Distilleries are considering using Nigeria's mounting supply of sugar for making rum and specialty liquors.

Equipment Requirements

Beer and soft drink production equipment has strong sales potential during the 1975–80 period. Machinery expected to be in greatest demand includes brewing vessels and tanks, pasteurizers, bottle fillers and washers, labelers, carton conveyor systems, and casing and decasing equipment. (One-way containers are little-used in Nigeria).

Roughly \$32 million is expected to be spent on beverage production facilities by the Federal and State Governments during the Third Plan period. Major projects include construction of a \$3.8 million brewery in Benue-Plateau State, a \$4.9 million beer and soft drink plant in Kwara State, a \$3.9 million beer/stout/soft drink plant in Lagos State, a \$1.6 million soft drink factory in North-Central State, a \$2.6 million beer and soft drink plant in North-Eastern State, a \$4.9 million brewery in Rivers State and a \$2.5 million brewery in South-Eastern State—plus a \$1.6 million expansion of Golden Guinea Breweries Ltd. in East-Central State.

The private sector also is expected to make significant investments in the industry over the 1975–80 period. Nigeria's largest brewery, Nigerian Breweries, plans to invest over \$40 million in expansion projects during 1976 and 1977. The Nigerian Bottling Company, which has the Coca-Cola franchise, already is in the process

of constructing a new soft drink factory in Lagos and plans to build a new factory in Kano to double the capacity of its Ibadan factory.

Competition

Accounting for 43% of total imports of \$3

million, the United Kingdom was the major source of Nigeria's beverage production machinery in 1974. Germany and Belgium also held significant shares of the market in that year. The chief suppliers in the past have been George J. Meyer Ltd., a U.S. subsidiary, and Dawson and Barfos Ltd. of the United Kingdom; Holstein & Kappert of Germany; and Baele of Belgium.

AGRICULTURE AND ALLIED INDUSTRIES

Agriculture, now second to petroleum as a primary contributor to gross domestic product (GDP) and foreign exchange earnings, continues to be the livelihood of most Nigerians. Agriculture occupies about 64% of the domestic labor force, and accounted for more than 18% (\$6 billion) of GDP in the fiscal year ending March 31, 1975. Although the value of agricultural production has been rising in absolute terms, its growth trails that of the rest of the economy. Domestic food production has fallen increasingly behind consumption, and food imports have been rising at an average annual rate of 20% since 1971.

Concurrently, exports of a number of agricultural products, some of which are major foreign exchange earners, have declined. For example, exports of Nigeria's major cash crop, peanuts (locally called groundnuts), decreased from 198,658 metric tons in 1973 to 30,350 in 1974. Actual peanut production, estimated at 750,000 metric tons in 1974, is not expected to reach its record 1 million metric-ton level of 1972 for years to come.

The Nigerian Government is greatly concerned about these trends. To stimulate and revitalize agriculture, the Federal and State Governments together plan to invest roughly \$3.6 billion in agriculture over the 1975-80 Third Plan period. These funds will be apportioned as follows: crop production, 74.8%; livestock and dairy farm production programs, 15.6%; forestry programs, 5%; and fishery programs, 4.6%.

Private investment through 1980 is expected by Nigerian Government planners to amount to

approximately \$2 billion, or 36% of total projected investments in agriculture. Most of these expenditures will be channeled into development of crop farming and fisheries.

Government Impetus Promotes Development

While private farmers are expected to continue to account for the great bulk of output, government expenditures will be the major stimulus to this sector's future economic development.

The principal government agency responsible for agricultural development is the Federal Ministry of Agricultural and Natural Resources. Additionally, there are State agricultural ministries. They plan their own agricultural development programs but obtain Federal Ministry approval and financial and technical assistance.

The Nigerian Agricultural Bank (NAB), established in 1973, is expected to play a major role in the development of the agricultural sector; nearly \$250 million has been set aside for its 1975-80 lending program. The Bank extends loans to State Government agencies, private farmers, and cooperatives. Table 21.1 provides a breakdown of NAB loans by State and by purpose.

The next four chapters deal with the following principal agricultural commodities and related processing activities: Crops and Crop Processing, Livestock and Animal Products, Fish, and Forestry and Wood Processing. A separate chapter is also devoted to Semi-Arid Land Development.

Chapter 21

CROPS AND CROP PROCESSING

HIGHLIGHTS

Food production for domestic consumption—chiefly grains, cassava, and yams—is not keeping pace with population growth, and production of export crops—cocoa, rubber, palm oil, cotton, and peanuts—is growing at a sluggish rate. Low yields are attributed largely to small scale cultivation and the lack of modern production methods. An estimated 90% of all crops are produced on farms of 3 acres or less, and their owners use only hand tools, very little fertilizer, and no pesticides or herbicides.

Federal and State Governments have budgeted \$2.7 billion in the *Third National Development Plan* for various crop productivity programs. Most of these programs are targeted at increasing the use of fertilizers and pesticides, encouraging a greater degree of mechanization, providing adequate credit to farmers and improving irrigation, soil conservation, manpower training, research, etc. These well-funded programs contain substantial sales opportunities for U.S. suppliers of agricultural equipment and supplies.

EQUIPMENT AND SUPPLY REQUIREMENTS

Crop production equipment and supplies expected to be in greatest demand include tractors, combines, seed drills, plows, harrows, row planters, tillers/cultivators, spraying equipment, chemical fertilizers, insecticides, and fungicides. In addition, processing equipment will be needed for sugar cane, grain milling, cocoa beans, citrus fruit, and grain storage. Demand for all of these items is met entirely by imports, and, for the foreseeable future, only the market for fertilizers will be satisfied in part by local production.

Production Equipment

The total import market for cultivating equipment, harvesting equipment, tractors, and other crop production equipment was valued at \$15.4 million in 1974, reflecting a 35% average annual growth rate since 1972. Suppliers of this equipment anticipated imports would reach \$20 million

in 1975 and \$50 million in 1980 as major government development programs get underway.

Tractors of 40–132 hp will have perhaps the highest sales potential of any equipment item over the next 4 years. At present, few of Nigeria's farmers use mechanized methods of cultivating and harvesting. However, increased mechanization in the agricultural sector will be a major priority of the Government during the 1975–80 Third Plan period. The State Governments alone will purchase an estimated 435 tractors for the use of private farmers through extension services.

Imports of all types of agricultural tractors totaled over \$10 million in 1974; they were expected to reach \$12 million in 1975 and \$20 million in 1980.

Spraying equipment will represent another big sale item over the next several years. Pest control has largely been neglected by farmers. The State Governments will be launching major campaigns through extension service programs to encourage widespread pest control. The import market for spraying equipment approached \$900,000 in 1974. Importers expected this value to reach \$1 million in 1975 and \$4 million in 1980.

Supplies

Imports of chemical fertilizers totaled \$10 million in 1974; consumption in that year was estimated at 20,000 tons, or less than 2 pounds per cultivated acre. During the Third Plan period, the Federal and State Governments will launch major programs through extension services to encourage the use of fertilizers in all parts of the country. So far, fertilizers have been used primarily in northern Nigeria.

At present Nigeria's requirements for chemical fertilizers are met wholly by imports. However, a 100,000-ton-capacity, Japanese-built superphosphate plant at Kaduna will supply a portion of future domestic needs. A urea plant is also expected to be constructed in the near future. Agricultural experts in Nigeria predict that, despite the anticipated volume of local production, rapidly growing domestic demand will raise chemical fertilizer imports to \$12.5 million in 1975 and about \$40 million in 1980.

Insecticides and fungicides will also be in great demand during the next 5 years. In the past, pest

Table 21.1.—Nigerian Agricultural Bank Ltd.: volume of approved business, March 1, 1973 to June 15, 1975
(in millions of U.S. dollars)¹

Direct lending									Direct lending total
State	Poultry	Swine	Cattle	Arable crops	Tree crops	Horti- culture	Fisheries	Mixed farming	
North-West	—	—	—	.2	—	—	—	—	.2
North-Central .....	.4	—	—	.2	—	—	—	.8	1.4
North-East	—	—	—	.9	—	—	—	.9	1.8
Kano .....	.7	—	—	—	—	—	—	—	.7
Benue-Plateau	—	—	—	.4	—	.1	—	—	.5
Kwara	—	.1	—	—	—	.1	—	—	.1
Western .....	.02	.9	—	.3	—	—	—	—	1.4
Mid-West	—	—	—	—	8.4	—	—	—	8.4
Lagos	—	—	—	—	—	—	1.6	—	1.9
East-Central .....	.6	—	—	7.7	11.9	—	—	—	20.2
South-East .....	.2	—	.6	—	7.6	—	—	—	8.5
Rivers .....	.2	—	—	—	8.0	—	1.7	—	9.9
Total	2.3	1.0	.6	9.7	35.9	.2	3.3	1.7	54.7
Percent of grand total	2.2	.8	.5	8.9	33.5	.2	3.0	1.6	50.7

Continually-funded projects

State	Arable crop production	Marketing	Integrated projects	Continuous funding total	Grand total	Percent
North-Western	7.0	—	—	7.0	7.2	6.6
North-Central .....	.4	6.3	—	6.7	8.1	7.3
North-Eastern	—	6.3	—	6.3	8.1	7.5
Kano	3.5	—	—	3.5	4.2	3.5
Benue-Plateau	—	—	5.6	5.6	6.1	5.6
Kwara	2.8	—	—	2.8	2.9	2.7
Western	—	—	6.9	6.9	8.3	7.7
Mid-Western	—	—	5.5	5.5	13.9	13.0
Lagos	—	—	1.2	1.2	2.8	2.6
East-Central	—	.5	2.4	2.9	23.1	21.4
South-Eastern	—	—	4.7	4.7	13.2	12.2
Rivers	—	—	—	—	9.9	9.2
Total	13.7	13.1	26.3	53.1	107.8	100.0
Percent of grand total	12.7	12.2	24.4	49.3	100.0	

1. Converted at ₦1. = \$1.58, the average rate over the period during which the loans were made.
Source: Nigerian Agricultural Bank.

control chemicals were used primarily for cash crop production. However, the Federal and State Governments plan to institute extension service programs to undertake large-scale use of these chemicals for all crops.

Sales of insecticides and fungicides totaled \$12.6 million in 1974. Imports were expected to reach \$15 million in 1975 and more than \$20 million in 1980 as a result of expanded Federal and State purchasing. See Chapter 25, "Semi-Arid Land Development", for a further discussion of agrochemical requirements.

Processing and Storage Equipment

Constructing 43 government crop processing plants, plus new private plants, will significantly boost demand for related equipment (see Sector Analysis). The bulk of the equipment needed will be for milling grain and processing sugar cane, cocoa beans, and citrus crops.

Sales opportunities should be excellent for grain grinding and crushing machinery, grain mixing and cleaning machinery, seed grain selectors, grain seed fore-cleaning and separating machines,

and grain driers and cookers. Sixteen grain processing projects, estimated to cost nearly \$30 million, are planned for the 1975-80 period.

The market for grain storage equipment has been negligible in the past, but future demand is expected to be high as major programs to increase grain production and storage get underway. During the Third Plan period the Federal Government is expected to stock over 250,000 tons of grain under its Federal Grain Reserve Scheme. The State Governments are expected to institute similar programs. Trade specialists expect annual sales of grain silos to have reached \$2 million in 1975 and to surge to \$8 million by 1980. See Chapter 25, "Semi-Arid Land Development," for an additional discussion on grain storage requirement.

COMPETITION

The major sources of Nigerian imports of crop production equipment are the United Kingdom, with a 1974 market share of about 55%, and the United States, with a 20% share. Massey-Fergusson is the leading British supplier, and Ford Tractors, David Brown (J.I. Case), International Harvester, and John Deere are among the leading U.S. suppliers. Although Massey-Fergusson equipment generally is higher priced than U.S. equipment, the firm currently controls about 50% of the market. A prominent supplier since colonial days, Massey-Fergusson has sustained its sales leadership by its distributor, Bewac (Nigeria)

Ltd., providing adequate after-sales services and immediate spare parts replacements. Starting in 1974, however, the distributor has experienced difficulties in acquiring sufficient machinery, and inventories have been completely drained. Equipment delivery to the farmer is ranging from 9 to 12 months which has forced many customers to seek other sources of supply.

Most distributors and dealers of American equipment have not been noted for their after-sales service in the past, and in many instances this has significantly affected their market positions. The need for such service is critical in Nigeria, where skilled labor is limited and much equipment is used in remote areas of the country under punishing conditions.

Several U.S. equipment distributors recently have made major attempts to improve their maintenance capabilities; some are considering establishing equipment repair facilities in various parts of the country to provide easier access to service. Ford's tractor distributor is reported to have the best reputation for post-sales service, and Ford has the largest market share among U.S. equipment distributors.

Sourcing of Nigerian import requirements for chemical fertilizers changes frequently in response to world market considerations such as availability and price. The leading supplier countries in 1974 were Germany, Belgium and Japan, with market shares of 28%, 20%, and 17%, respectively. The United Kingdom held a 40% share of the market for insecticides and

Table 21.2.—Nigerian production of crops, 1971-1974
(in thousands of tons)

	1971	1972	1973	1974
Rice, paddy	471	468	513	535
Millet	2,688	2,584	2,330	3,030
Sorghum	3,140	3,499	2,966	3,500
Corn	931	1,120	1,287	1,350
Pulses	542	540	480	525
Cassava	12,396	12,700	13,000	13,300
Yams	16,104	16,257	16,800	17,200
Cocoyams	1,479	1,524	1,565	1,600
Tobacco	15	16	13	13
Cotton	38	49	30	54
Cottonseed	77	95	62	114
Soybeans	1	4	6	6
Peanuts, in shell	845	1,125	550	750
Sesame seed	3	6	5	6
Bananas and plantains	1,300	1,330	1,360	1,390
Other fruit	47	48	50	51
Cocoa beans	265	264	218	205
Rubber	62	54	68	75
Kola nuts	136	139	143	146
Sugar, raw	34	40	40	40
Palm oil	432	457	432	475
Palm kernels	307	295	259	300

Source: U.S. Department of Agriculture.

Table 21.3.—Exports of selected agricultural products by quantity and value, 1973 and 1974

Item	1973		1974	
	Metric tons	Thousands of dollars ¹	Metric tons	Thousands of dollars ²
Cocoa beans	213,897	170,794	197,125	258,969
Cocoa butter	11,116	22,753	10,786	21,852
Cocoa cake	15,534	8,211	8,083	6,019
Peanuts	198,658	69,168	30,350	11,123
Peanut oil	110,796	35,945	23,653	16,984
Peanut cake	137,489	27,299	22,079	5,944
Palm kernels	137,454	28,673	184,535	71,550
Palm kernel oil	39,851	11,736	38,462	35,125
Palm kernel cake	22,767	2,055	33,313	3,409
Palm oil	23	13	22	18
Cotton lint	8,227	7,151	—	—
Cotton seed	9,149	1,071	14,126	1,436
Rubber, crepe	39,401	23,132	25,040	30,817
Hides and skins	3,748	14,595	5,459	20,562

1. Converted at ₦1 = \$1.52.

2. Converted at ₦1 = \$1.62.

Source: Federal Office of Statistics, Lagos.

fungicides in that year (see Chapter 16, Chemicals).

The market for processing and storage equipment, with the exception of grain milling equipment, has been significant in the past. Imports of grain milling machinery approached \$2 million in 1974, with most of it—roughly 65%—purchased from Germany.

SECTOR ANALYSIS

Crop Production

Over 90% of Nigeria's annual production of crops is grown by private farmers on one- to three-acre plots under traditional methods of cultivation. The total cultivable land in the country has been estimated at 175 million acres. Less than half of this, or about 84 million acres, is in production.

There are three main ecological zones in Nigeria where a variety of crops are grown. Practically all tropical tree crops are grown in the *rain forest zone* in the south, covering Western, Mid-Western, East-Central, South-Eastern and Rivers States. The most important of these crops are cocoa, palm oil and rubber. Cassava, yams and cocoayams are the main locally consumed food crops grown in this zone, followed by maize and rice.

The *Guinea zone* encompasses the middle belt of the country and includes Kwara and Benue-Plateau States, together with the southern portion of North-Eastern State. The principal crops produced are sorghum and pulses, followed by root crops, peanuts, and cotton.

Most of Nigeria's output of sorghum, millet, cowpeas, cotton, and peanuts is grown in the dry *Sudan zone* in the north, encompassing Kano State and the northern parts of North-Western, North-Central and North-Eastern States. Rice, sugar cane and tobacco are grown in the flood plains ("fadamas") of the rivers. This northern area also is the main cattle-raising area.

Outputs of peanuts and millet have substantially recovered from the drought-suppressed levels of 1973 (see table 21.2). Overall production, however, has not been increasing as fast as population growth and consumption. Nor have exports been up to expectations (see table 21.3).

The government-owned Nigerian Produce Marketing Company and its various marketing boards administer central pricing, buying, and distribution of produce for both the domestic and export markets. Nationwide prices for peanuts, coffee, cocoa, cotton, sheanuts,¹ soybeans, palm oil, and palm kernels are now being fixed before harvest. The marketing boards raised prices substantially in 1973 as an incentive to increase farm production (see table 21.4 for 1974-76 production prices).

The Nigerian Government, gravely concerned with the relative stagnation in crop production, has made agricultural development a major priority of the Third Plan.

The Federal and State Governments have outlined programs valued at \$2.7 billion to stimulate crop output. Approximately 45% of this sum, or \$1.2 billion, is allocated to agricultural

1. Sheanuts are gathered from wild, scattered trees (*Butyrospermum parkii*) in northern Nigeria and northern Ghana. They are rich in oil which in Europe is known as "shea butter" and is used in soap and margarine.

infrastructure development (irrigation works, soil conservation programs, research, manpower training, etc.). Another 30%, or \$800 million, is budgeted for farm inputs (procurement and distribution of fertilizer and pesticides, farm machinery, and farm credit). Most of the remainder is allotted to special programs to increase production of cereals and other food crops and to encourage small farmers' participation in tree crop production.

The State Governments have the primary responsibility for the implementation of these programs. To achieve the objectives of increased farm inputs, they have created various extension services. These chiefly comprise agricultural equipment pools, seed and fertilizer distribution, and credit services. To encourage large-scale farming with minimum labor problems, many State Governments have begun to promote cooperative farming. One of the most successful co-op programs is that in the North-Eastern State, where several hundred cooperatives have been reorganized into 91.

Many State ministries have also established their own large-scale farms and plantations. Kwara State plans to establish a land development scheme aimed at assisting farmers in making the best use of the land available for crop production. Large blocks of land will be acquired, cleared, and plowed by the Government and allocated to farmers for the production of the most suitable crops.

Several State Governments have also begun negotiating with large foreign companies for development of their agricultural resources. FMC (Food Machinery Corporation) recently received a contract from the Kano State Government for the development of 60,000 acres, to include not only irrigation and cultivation but also crop harvesting, processing, and distribution. The project, expected to be completely operable in 8 years, is estimated to cost about \$800 million. FMC has also received feasibility study contracts from two other State Governments for similar projects on a smaller scale.

Tiffany Industries, a U.S. manufacturer of agricultural equipment and office machinery, is developing over 100,000 acres under its agreement with the Government to produce corn, soybeans, milo, and rice. Several other U.S. makers of equipment for agriculture will also benefit from this venture. These include White Motor Company to supply farm machinery, and Caterpillar to supply earthmoving machinery. Six Grumman Ag Cats will be used as well.

The Federal Government's food crop program during the Third Plan period is expected to increase production of the major cereals (rice, maize, sorghum, millet and wheat). This program, an extension of the National

Accelerated Food Production Program of the Second Development Plan period, will involve the cultivation of several thousand acres and the participation of 324,000 farmers by 1980. Planners hope that the new farmland will have minimum annual yields of 146,000 metric tons of rice, 97,440 of maize, 4,000 of sorghum, 9,300 of wheat, 3,000 of soybean and 10,700 of pigeon peas. This project, which emphasizes a coordinated approach for accelerating the adoption of improved seeds and advanced technology, is being assisted by USAID through a contract with the International Institute for Tropical Agriculture (IITA).

The World Bank has committed \$87 million in loans for major projects to increase seed cotton production by 90,000 tons, corn by 243,000 tons, peanuts by 24,000 tons and cowpeas by 11,400 tons. In addition, the World Bank is participating in large cocoa and oil palm rehabilitation projects.

Crop Processing and Storage

Under the *Third National Development Plan*, Nigeria plans to bring its industrial crop processing capability from the present few rudimentary plants up to a modern industry capable of meeting a significant portion of the country's food needs. A total of 43 projects costing \$670.5 million are planned for implementation by the Federal and State Governments during the Third Plan period to either expand existing plants or erect new ones. The projects break down as follows:

	Millions of U.S. dollars
4 Rice mills	9.3
7 Starch and fiber mills (corn, cassava)	6.9
5 Feed mills	13.6
4 Sugar mills/refineries	585.6
3 Vegetable oil refineries	13.2
8 Palm oil mills	18.1
5 Fruit & 5 fruit and vegetable canneries	8.7
2 Cocoa products plants	9.1
5 Others (cornflakes, cashews, coconut, coffee and tea)	6.0
Total	670.5

Additional projects are planned in the private sector. For example, Livestock Feed Limited (Pfizer), the major commercial supplier of animal feed in the country, plans to expand and diversify its four mills in the near future; capacities and sites had not been decided in mid-1975. The company is primarily involved in poultry and pig feeds but plans to expand the cattle feed operations it has just begun. Present milling and mixing machinery is British (Harlow).

*Table 21.4.—Production prices of
selected produce, 1975 and 1976¹*
(U.S. dollars per metric ton)²

Produce	1975	1976
Seed cotton	269	507
Beniseed	287	434
Soya bean	108	163
Groundnut	269	411
Cocoa	899	1,086
Palm kernel	215	247
Copra	269	329
Special palm oil	358	461
Technical palm oil	336	436
Coffee arabica	946	1,152
Coffee robusta	824	1,003
Coffee liberica	763	929

1. Converted from Naira at ₦ 1. = \$1.645.

2. Years ending March 31.

Source: Federal Office of Statistics.

Chapter 22

LIVESTOCK AND ANIMAL PRODUCTS

HIGHLIGHTS

The Nigerian livestock industry is expected to undergo major changes during the 1975-80 period. Nigeria's population and personal income have been rising steadily, resulting in substantial increases in the demand for livestock products, including meat and milk. Traditional livestock production has not been able to keep up with the demand, and imports have continued to fill this gap. Total imports of livestock, meat, and dairy products have averaged around \$160 million annually from 1971 through 1974.

Most of the livestock is still produced under traditional breeding, raising and slaughtering methods. Such methods have been a major constraint to the development of the industry.

To improve these methods and thus increase output, Federal and State Governments plan to spend some \$566 million in this industry during the Third National Development Plan period. These funds will pay for programs to increase cattle, sheep, goat, poultry and pig production, as well as to improve dairy production. The implementation of these programs is expected to create good sales potential for suppliers of livestock and of livestock production and processing equipment.

SECTOR ANALYSIS

Livestock production represents a significant national investment in Nigeria. The current capitalization of the livestock industry is estimated at \$3.3 billion. Over 50% is in cattle, 35% in sheep and goats, about 7% in poultry, and the rest in pigs, horses and other domestic animals. The 1974 industry gross output was valued at an estimated \$280 million at producer prices and \$411 million at retail.

In 1974 the livestock population—including cattle, sheep, goats, pigs, poultry and rabbits—was estimated at 150 million (see table 22.1).

Over 90% of the nation's cattle are located in the northern States and owned by nomads of the Fulani Tribe. The remaining 10%—comprised of such cattle breeds as the Muturu, that are resistant to trypanosomiasis (a disease spread by the tsetse fly), are raised in the southern forest zone. The total cattle population is estimated at 8.2 million.

The populations of sheep and goats are estimated at 18 million and 23 million, respectively. About 70% of these animals are raised in the north and the remaining 30% are found in the Derived Savanna (southwest) and southern forest zones.

Various indigenous breeds of pigs and poultry are

found in different areas of the country. About 90% are reared under free range conditions. The 1975 swine population is estimated at 505,000. Domesticated fowl number roughly 122 million.

Livestock production is primarily a private sector activity. However, due to the heavy capital expenditures involved in large-scale, industrialized cattle ranches and mechanized slaughterhouses, such commercial production of cattle has been carried out almost entirely by Federal and State Governments.

The Federal Government also remains the major operator of large poultry and pig production facilities, although private concerns have become active in this area in the last few years.

The Federal agency having direct responsibility for the country's livestock production is the Nigerian Livestock and Meat Authority (LMA). This agency was formed by a government decree in 1971 to develop and better organize the industry and has the power to initiate livestock projects, enter into contracts and acquire property. One of the most significant projects undertaken by this agency to date has been the reorganization of the Mokwa Cattle Ranch and Abattoir, considered the largest and most modern facility of its kind in Africa. The LMA also has an interest in the Nigerian Food Supply Company, the sole distributor of Mokwa beef to urban retailers.

The States have their own livestock agencies responsible to the State Ministries of Agriculture and Natural Resources. These agencies plan and carry out their own livestock programs. In many cases, they either receive LMA financial assistance for their projects or form joint ventures with LMA.

A number of development programs will be initiated through the State and Federal Government agencies during the 1975-80 period. A total of \$566 million is budgeted for these programs, which include projects to establish national breeding centers, artificial insemination programs for cattle and pigs, poultry development programs, dairy farming and processing projects to increase production and marketing and distribution improvements, such as cold storage and transport facilities.

The bulk of expenditures is expected to go to increased cattle production, a reflection of the government's aim toward national self-sufficiency in meeting the population's protein requirements. The Federal Government alone plans to expand the annual output of its four existing cattle ranches from 22,500 fattened bulls to 80,000. In addition, 13 new ranches are planned: 4 funded solely by the Federal Government and the remaining 9 financed in part by the World Bank.

Table 22.1.—Livestock population in Nigeria by states, 1975 ¹

(thousands of head)

States	Cattle	Sheep	Goats	Pigs	Horses	Camels	Donkeys	Poultry
North-West	2,162	8,648	10,810	6	47	7.8	252	676
Rivers	3	20	40	n.a.	n.a.	n.a.	n.a.	2,400
North-East	4,027	2,626	3,809	19	435	11.0	577	75,000
West	101	4,199	3,027	258	n.a.	n.a.	n.a.	10,274
Mid-West	19	112	525	41	n.a.	n.a.	n.a.	3,631
Kano	413	447	1,007	9	83	.5	264	100
East-Central	106	530	1,060	25	n.a.	n.a.	n.a.	12,750
Kwara	250	178	202	21	1	n.a.	n.a.	2,800
South-East ²	22	96	212	25	36	n.a.	n.a.	1,495
North-Central ³	750	900	2,000	40	37	n.a.	164	7,500
Benue-Plateau ³	379	344	448	55	7	n.a.	5	4,000
Lagos	4	829	5	5	n.a.	n.a.	n.a.	912
Total	8,235	18,099	23,146	505	610	19.4	1,261	122,436

¹ As of March 31.

² South-Eastern State has 7,209 rabbits not classified in the above tables.

³ Benue-Plateau State has 60,000 rabbits not classified in the above tables.

Source: Nigerian Livestock and Meat Authority.

Meat Production

Expansion of Nigeria's only two modern abattoirs—Mokwa in North-Central State and Bauchi in North-Eastern State—is planned for the 1975-80 period. The Mokwa Cattle Ranch and abattoir is a joint venture between LMA and a German firm. They plan to expand annual production of the ranch from 5,000 head of cattle to 10,000. The abattoir, which handles 600 cattle monthly, will be enlarged to equal the capacity of the ranch. In addition, it is to be equipped with meat processing facilities.

The Bauchi abattoir expansion is a joint venture of the North-Eastern State Government and an Argentine firm. This facility was initially constructed with the assistance of the United States Agency for International Development (USAID). Expansion of the abattoir is already in progress and is expected to be completed by 1976.

Although Foremost's reconstituted products have already reached a sizable market, demand is expected to increase rapidly in the near future.

Other Dairy Operations

The Ahmadu Bello—Kansas State project at Zaria, North-Central State, has the only milk pasteurization plant. Sterilized milk is imported in bulk and bottled in glass at Lagos for retail distribution.

During the 1975-80 period the Federal and State Governments will launch major programs to increase dairy production. One of the most significant projects of the Federal Government will be to establish three dairy cattle breeding centers: two with an annual capacity of 420 calves and one with a capacity of 300. Most of the State Governments have similar dairy programs.

Most of the equipment for Nigeria's animal product industries is sold by British, German, and U.S. manu-

facturers. However, imports from the United Kingdom accounted for nearly 45% of the total \$7.2 million market in 1974.

Meat and poultry machinery accounts for most of the equipment imported by Nigeria's livestock industry. Of the \$6.7 million worth of meat processing and poultry production equipment imported in 1974, the United Kingdom, Germany, and the United States furnished 57%, 11%, and 4%, respectively.

The leading suppliers of dairy farming and processing equipment were the United Kingdom, with a 38% share of the market in 1974; Spain, 19%; and France, 12%.

Cold storage equipment will have perhaps the highest sales potential for U.S. suppliers. The United States is currently the second largest supplier of this equipment, with a market share of roughly 40%. Westinghouse is the leading U.S. competitor in cold storage installations, and Alumaco, partially American-owned, is the major supplier of cold storage transport facilities.

EQUIPMENT REQUIREMENTS

The total market for meat processing equipment, poultry production equipment, and dairy farming and processing equipment amounted to \$7.2 million in 1974. Trade sources predicted in July 1975 that imports would reach \$9.5 million in 1975 and grow to \$20 million in 1980. The market for meat processing equipment and poultry production equipment, valued at \$6.7 million in 1974 and estimated at \$8 million in 1975, is forecast to reach \$15 million in 1980.

Equipment identified as having the highest sales potential includes slaughterhouse equipment, cold storage and chilling equipment, incubators and hatcheries, milking machines and cream separators.

The six other abattoirs owned and operated by the State or Federal Governments, which now are primarily labor intensive, will be mechanized during the 1975-

80 period. Further, the Federal and State Governments plan to introduce modern slaughter techniques by establishing abattoir demonstration centers throughout the country. One model slaughterhouse, in North-Central State, is operated jointly by the departments of agriculture of Kansas State University and Ahmadu Bello University at Zaria. The center trains students in modern meat slaughtering and dairy techniques.

A system for grading meat, which will be regulated by LMA, also will be initiated during the Third Plan period.

Meat processing and packaging currently is done on a very small scale and is primarily a private sector activity. The largest facility is operated by the Foods Division of the United Africa Company (UAC) trading complex. The UAC meat factory processes over 20,000 pigs and 5,000 cattle annually. Its products include beef and pork sausage, bacon, ham, beef and pork luncheon meat and canned chopped pork and ham. In addition, UAC provides all cuts of beef and pork. The factory is equipped with the most modern meat processing equipment, including bowl choppers, automatic sausage roll machines, derinding machines, bone slicing machines, automatic brine injectors for curing bacon and ham, vacuum mixers, sausage stuffing machines and mincing machines. Most of the equipment is of German, Danish, or British origin although several U.S.-made items are also used. The factory manager indicated that the demand for his products was so great that the division was in a constant state of expansion. Equipment for the factory generally is purchased directly from overseas suppliers.

Dairy Production

Dairy production in Nigeria is very limited. Several State Governments operate dairy farms. One American firm, Foremost International, operates a modern commercial dairy plant which produces reconstituted milk products which are packaged in U.S.-style paper containers and sold under the SAMCO brand name.

Foremost/SAMCO

When Foremost International purchased the Swedish American Milk Company (SAMCO) of Nigeria in 1963, it expanded the plant's capacity to 4,000 gallons of milk products a day and introduced the most advanced techniques for milk reconstitution. But Foremost found that the existing distribution system could not handle marketing of the company's expanded product lines.

The solution was the tricycle which proved ideal both for traffic-choked cities and for outlying areas not accessible to motor vehicles. Hundreds of commissioned hawkers provide street and house-to-house sales.

This selling technique proved so successful that it has been expanded and is featured as a promotional symbol. Foremost has built several tricycle depots

throughout the two Nigerian states that it serves. Each depot is equipped with refrigeration facilities where milk products can be stored. Each tricycle is furnished with an insulated box, where milk products are packed against ice flakes and brine pads to keep them fresh.

In another adaptation to the Nigerian environment, Foremost markets the majority of its products in half-pint cartons, enabling consumers to purchase amounts which can be used quickly. The lack of refrigeration facilities combined with the country's tropical climate make the rapid consumption of perishables a necessity.

As a result of this marketing approach, Nigerians are changing their traditionally protein-deficient diets. Today, despite the absence of significant dairy farming in the country, Nigerians can purchase such nutritious dairy products as milk, ice cream, cottage cheese and yogurt.

Meat Processing Equipment

During the 1975-80 period, a total of 17 major cattle ranches, 8 pig farms and 4 sheep and goat ranches are expected to be expanded or established at a cost of over \$70 million. In addition, 15 modern abattoirs are planned for construction at a cost of about \$6.6 million, and several cold storage depots are scheduled for construction at a cost of over \$11 million. The slaughterhouses are expected to contain the most modern equipment, including hydraulic killing boxes, freezing and cooling rooms, and highly mechanized butchering equipment. They will also install feedlots for the final fattening of steers prior to slaughter.

Meat production was estimated at 550,000 tons in 1974 and is predicted to triple by 1980, according to sources at the Nigerian Livestock and Meat Authority. This anticipated rise in output and the training and retraining of butchers being carried out by Government are expected to lead to a greater use by traditional meat retailers of mechanized cutting and processing equipment. In addition, the demand for meat cutting and processing equipment should increase among the modern Nigerian meat retailers such as Bhojsons and CFAO Supermarket.

Poultry Production Equipment

As part of the Federal and State programs to increase domestic poultry production, more than \$6.5 million will be spent over the next 4 years to establish at least nine large-scale poultry farms across the country. In addition, one of Nigeria's largest privately owned commercial farm enterprises, Olaogun Enterprises, expects to increase its present capacity from 1.2 million chickens a year to 2.5 million by the end of 1976.

As a result of these plans, attractive sales prospects should arise over the next 5 years for suppliers of incubators and hatcheries. But demand for poultry processing equipment on the other hand, is expected to be limited over the next few years. Fowl is processed

manually, and poultry experts say conversion to more sophisticated techniques is highly unlikely in the near future.

Dairy Farming and Processing Equipment

The dairy farming industry is expected to offer major sales prospects for suppliers of silos, mixing and grinding machines for feed, silage-making machines, milking machines, and on-farm cooling equipment. Roughly \$16 million worth of this machinery is expected to be bought from 1976 through 1980.

Milk production in Nigeria was estimated at

355,000 tons in 1974. State and Federal Governments hope to double this level by 1980. Over the 1975-80 period 10 dairy farms are to be established at a cost of more than \$7.4 million. The latest dairy farming techniques are expected to be employed on these farms, and milk processing will be done with modern equipment.

Imports of dairy farming and processing equipment amounted to \$500,000 in 1974. With major dairy production projects getting underway, the market is expected to grow from \$1.5 million in 1975 to \$5 million in 1980.

Chapter 23

FISH

HIGHLIGHTS

Nigeria will invest as part of the *Third National Development Plan* over \$217 million in fishery development and processing projects. The objectives of these activities are to increase domestic fisheries production to meet local demand and to increase the shrimp catch for export. The Government hopes to increase the fisheries catch to almost 1.2 million metric tons by 1980. The **Third Plan** provides a number of opportunities for U.S. firms able to supply equipment or technology for aquaculture projects; freshwater and marine fisheries; and port processing and marketing facilities.

EQUIPMENT REQUIREMENTS

The country relies on imports for most fishing equipment requirements; only some small fishing boats are made locally. Nigeria's 1974 import bill for fishery equipment, including fishing boats, fishing and shrimping trawlers, fishing gear, outboard motors, and cold storage equipment, was estimated at \$10 million. Major Nigerian Government projects aimed at developing the fishing industry are expected to boost equipment imports from \$12 million in 1975 to \$24 million by 1980, representing an annual growth rate of 15%.

Sales opportunities for fishing vessels, including fishing and shrimping trawlers, should be particularly good during that period. The Federal Government alone plans to purchase over 1,000 fishing vessels (at a cost exceeding \$9 million) to be made available to private fishermen through extension services and cooperative programs. In addition, the State Governments are expected to make similar purchases over the next 5 years. At least five States plan to establish fishing companies by 1980, which should present opportunities for fishing vessel sales.

Fishing vessel equipment also is expected to be purchased by the Federal Government for the use of the recently established Nigerian National Fishing Company and Nigerian National Shrimp Company.

Private fisheries are expected to purchase new equipment as well. Several companies presently operating under charter arrangements with

foreign firms plan to purchase their own distant-water fishing vessels over the next few years.

Until now, imported fishing craft have been used primarily for coastal fishing. A recent Federal law limits the size of coastal fishing vessels to 150 gross tons. Distant-water vessels have ranged up to only 250 gross tons (see tables 23.3 and 23.4) although Nigerians may be interested in larger boats up to 6,000 gross tons.

The total market for fishing vessels was estimated at \$3 million in 1974. The major suppliers to this market have been the United States, the United Kingdom, and Singapore, with the United States having the largest market share—43% in 1974. Trade sources predicted imports of \$4 million in 1975 and \$15 million by 1980.

There are several Nigerian boat builders which supply vessels for inshore fishing. Their boats are relatively small and unsophisticated, ranging up to 45 feet, and are generally used by artisanal, nonindustrial fishermen. Epe Boat Yards, owned by the Western State Government, is the largest of these companies. These builders do not expect, however, to build large, distant-water fishing vessels in the near future.

A substantial market for outboard motors is expected to emerge over the next 5 years. The market for outboard motors was estimated at \$1.5 million in 1974 and \$2 million for 1975. It is expected to reach \$5 million by 1980. The major suppliers have been Belgium, the United Kingdom and the United States, with Belgium having the largest market share—44% in 1974.

While there will be major efforts to mechanize the fishing industry during the Third Plan period, limited capital and know-how among private fishermen will result in most continuing to use canoes. To assist such fishermen in achieving more productive methods, the Federal Government has allocated over \$8 million for grants and loans to be used for purchasing fishing equipment, including outboard motors.

Sales of fishing tackle are expected to triple over the next 4 years as the Government helps individual fishermen and industrial firms buy additional nets, hooks, traps, and other gear. Most artisanal fishermen presently produce their own fishing tackle as do some of the larger fishing companies. The Nigerian Government will encourage the use of more sophisticated equipment by offering it through extension services.

Imports of fishing gear totaled close to \$1.5 million in 1974; over 95% of this equipment originated in the Far East. Nigeria's imports of fishing gear are expected to have reached \$2 million in 1975 and should climb to \$6 million by 1980.

During 1975-80, the Government also plans to build fishing terminals for storing and processing fish. This program should present major sales prospects for suppliers of cold storage equipment, smoking kilns and dehydration plant equipment.

SECTOR ANALYSIS

The fishing industry has perhaps the highest resources development potential of any subsector in the Nigerian economy. Nigeria is rich in marine and freshwater fish resources. It possesses over 800 kilometers (500 miles) of coastline, extensive brackish-water lagoons, and creeks, rivers, and lakes such as Lake Chad and man-made Kainji Lake. These resources, however, have yet to be fully developed. Most of the country's fishing is still done by traditional fishing methods. Nigeria's total fish production in 1974 was estimated at close to 700,000 metric tons. Table 23.1 indicates fishery production and imports for 1970-80.

Domestic fish demand is currently estimated at over 1 million tons annually and is expected to exceed 1.5 million tons by 1980. To fill the gap between domestic production and demand, 200,000 tons of fish were imported in 1974. (Table 23.2 indicates fish imports by type from 1968-1974.)

Nigeria's fishing industry can be divided into two basic categories: artisanal fishing which is nonmechanized canoe fishing and industrial fishing. The vast majority of the country's fishing is done by traditional fishermen in canoes. Laborintensive artisanal fishing is characterized by low productivity. There are three principal

Table 23.1.—Nigerian fish production, 1970-80
(in thousands of metric tons)

Year	Catch	Imports
1970	543	65
1971	593	72
1972	646	87
1973	666	106
1974	700	200
1975	740	350
1976	818	370
1977	895	390
1978	985	410
1979	1,085	430
1980	1,190	450

Source: *FAO Year book of Fishery Statistics*, for 1970-73 catch data; Federal Department of Fisheries, Lagos for 1970-73 imports; *Third National Development Plan* for 1974-80 estimates and projections.

FIGURE 23.1—Fish supply targets 1975-1980
(in millions of tons)

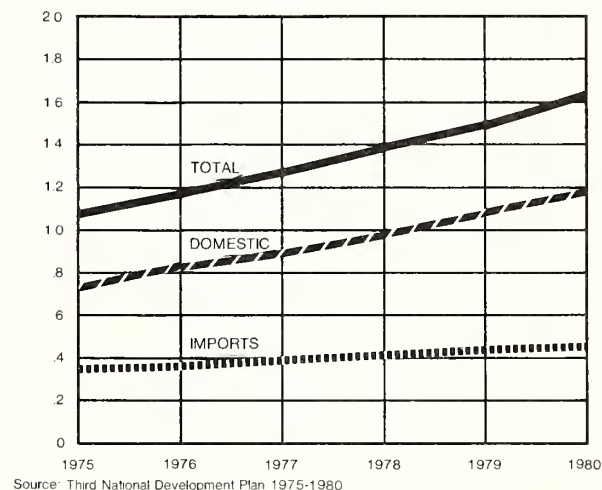


Table 23.2.—Nigerian fish imports 1968-73¹
(in metric tons)²

	1968	1969	1970	1971	1972	1973	1974
Chilled or frozen fish (distant water landing)	14,040	21,614	34,014	54,416	65,074	71,411	n.a.
Salted, dried, or smoked fish	477	2,687	1,538	2,348	947	1,855	n.a.
Canned fish (Sardine and other preserved fish)	1,488	1,568	1,264	3,776	7,885	8,984	n.a.
Dried cod ³	32,864	4,022	28,589	11,641	13,010	23,916	105,000
Total	48,869	29,891	65,405	72,181	86,916	106,916	200,000

1. 1968-72 are revised figures.

2. All figures are in wet weight equivalent; conversion ratios are shown for each category of processed fish.

3. Dried cod is referred to as *stockfish* in Nigeria.

Source: Federal Department of Fisheries, Lagos.

variations—coastal fishing, brackish-water fishing, and freshwater fishing.

Coastal fishermen operate from remote villages scattered along the coastline. They use large canoes (some with engines) and fish with set nets and beach seines. The brackish-water canoe fishermen operate on creeks and lagoons using smaller canoes and a variety of set nets, cast nets, hooks, and traps. Freshwater fishermen operate similarly on rivers and lakes.

The Government believes that over 50% of the fish caught in remote areas by artisanal fishermen spoil before reaching the market. The causes for the spoilage are crude smoking processes, inadequate transportation, unsanitary storage, improper handling, and refreezing of thawed fish.

In the past, modernization of Nigeria's fishing industry has been constrained by inadequate investment capital, poor storage facilities, poor fishing equipment, inadequate marketing communications networks, a shortage of trained manpower and lack of effective fishing organizations.

Industrial fishing, which comprises less than 10% of total fishing in Nigeria, is primarily distant-water fishing, although there is some inshore fishing done on the continental shelf. It is relatively capital-intensive, involving the use of deep-sea trawlers. However, limited investment capital for new equipment and the scarcity of trained Nigerians have tended to limit the participation of indigenous companies.

Deep-sea fishing currently is dominated by foreign-owned trawlers which are operated on charters by Nigerian companies. About 20 Nigerian firms are involved in charter arrangements (see table 23.5). Approximately 100 deep-sea vessels, ranging between 1,000 and 6,000 gross tons, are presently licensed through these companies. The vessels are equipped with cold storage and fish processing facilities. Under the charter arrangements, all equipment, labor and technology required for deep-sea fishing are provided by the foreign operators. The main activities of the Nigerian companies are the distribution and marketing of the catch through owned facilities.

Although private sector industrial distant-water fishing activity still is dominated by foreign charter operators, several large Nigerian companies have plans to purchase equipment for distant-water fishing in the near future.

Osadjere Fishing Company, part of the large Ibru Enterprises Complex and one of the largest fishing operations in the country, planned to purchase four shrimp trawlers by the end of 1975. This company, which accounts for more than three-fourths of the Nigerian shrimp catch, has a fishing fleet of approximately 62 vessels. Fifty of these vessels are chartered from a Japanese firm,

Table 23.3 — Inshore fishing vessels licensed in 1974, by tonnage

<i>Gross tonnage</i>	<i>Number of vessels</i>
Under 10	1
10 - 30	12
30 - 50	12
50 and above	8
Total	33

Source: Federal Department of Fisheries, Lagos.

Table 23.4 — Shrimpers licensed in 1974, by tonnage

<i>Gross tonnage</i>	<i>Number of vessels</i>
50 - 100	2
100 - 150	30
150 - 200	6
Total	38

Source: Federal Department of Fisheries, Lagos.

Table 23.5 — Major fishing companies registered in Nigeria in 1973

Osadjere Fishing Company Ltd.
Obelawo Farcha Fishing Ind. Ltd.
Ocean Fishing and Shipping Ltd.
Tristar Enterprises Ltd.
Nigerian Fish Supply
U.S. Kaisha (Nig) Enterprises Ltd.
Eko-Nippon Fishing Company
Rivers-Guild Fisheries Ltd.
West African Shrimps Ltd.
Linafish Nigeria Limited
Mesurado Fishing Co. Nigerian Ltd.
Sadia Fishing Company
Globe Fishing Ind. Limited
Atlas Fishing Company
Weli Fishing Ind. Limited
Ibru Sea Foods Limited
Elky Fishing Company Limited
Universal Fishing Co. Ltd.
Torok Partnership
Associated Fishing Ind. Limited

Source: Federal Department of Fisheries, Lagos.

and the remaining 12 are directly owned by the company. All of the vessels are industrial-type, with on-board cold storage and fish processing facilities. Ibru Sea Foods, the marketing and distribution arm of the company, also has numerous on-shore cold storage installations throughout the country as well as refrigerated transport facilities. The company also contracts with distributors throughout the country to market their seafood and has become active in coastal fishing.

Nigeria's coastal commercial fishing is dominated by indigenous fishing companies, some with overseas technical partners. The present inshore fleet has been estimated at 30 fishing boats ranging from 20 to 265 gross tons and 30 shrimping trawlers ranging from 100 to 180 gross tons. (The affect of the recent law limiting inshore vessels to 150 gross tons is uncertain.) The catch consists of 10 principal species of fish, of which croaker is the most important, and red deepwater shrimp.

In an effort to improve and develop Nigeria's total fishing industry, Federal and State Governments have outlined projects costing \$168.1 million as part of *The Third National Development Plan*. The projects envisioned under the represent a number of opportunities for U.S. firms in the areas of aquaculture, artisanal and marine fisheries, processing, marketing, training, and research. In addition, industrial projects related to fish and shrimp trawling and fish canning and distribution total \$49 million. The Fisheries Departments of the Federal and State Ministries of Agriculture and Natural Resources will be responsible for implementing these programs.

The *Third National Development Plan* sets the following goals:

- Increase domestic fishing production to meet local demand.
- Earn foreign exchange through increased shrimp exports.
- Encourage local production of fish meal and dried fish to conserve foreign exchange and to provide employment.
- Increase the catch and income of traditional fishermen.

The Nigerian Government is attempting to increase domestic fisheries' catch to almost 1.2 million tons by 1980. This represents an increase of 44% over the 1973 catch (see table 23.1), the last year for which statistics on the actual catch are available. The Nigerian Government believes that it is possible to obtain this large increase because of Nigeria's rich marine and freshwater fisheries resources.

Joint State-Federal projects will stimulate development of an intermediate stage between canoe fishing and advanced deep-sea fishing by introducing 50 medium-sized vessels for coastal fishing at a cost of \$9.9 million. The development of a shallow water fishing craft capable of beach landing in remote areas also is being considered.

A National Accelerated Fish Production Scheme for nonmechanized canoe fishing, to be developed during the 1975-1980 period, will

provide fishermen with seaworthy boats with outboard motors (to replace 2,000 canoes), modern fishing nets and gear, and facilities for servicing equipment. This program will also introduce and promote better methods of processing and marketing fish. The Government will encourage fishermen to organize into viable cooperatives through credit assistance for large volume cold storage and distribution facilities. The Federal Government plans to spend \$18.1 million to assist them.

The Third Plan envisions utilizing the vast area of water which will be created by the proposed irrigation dams and canals for aquaculture. The reservoirs will be stocked with five new hatcheries, each with an area of 99 acres. A number of State Governments will also establish fish ponds to supply fish fry and fingerlings for stocking purposes.

Both State and Federal agencies will take an active role in the shrimp industry. The discovery of abundant stocks of red deepwater shrimps in resource surveys and experimental fishing ventures carried out by joint Japanese-Nigerian companies has led to a boom in shrimp fishing. The Nigerian Government proposes to increase shrimp exports 400% by 1980. The 1973 export of over 1,350 tons is expected to increase by 1980 to about 5,500 tons a year, the estimated maximum sustainable yield from the Nigerian shrimping grounds. A Government study estimates that at recent average wholesale shrimp prices, Nigeria could earn \$25.6 million annually from shrimp exports by 1980.

In an effort to develop totally indigenous fishing companies, the Government has outlined a special fisheries program which will include grants, loans and subsidies to assist Nigerian companies in the purchase of trawlers to reduce or phase out the charter system. Orders for some deep-sea trawlers have already been placed. Moreover, the Federal Government will participate directly in the fishing industry during the 1975-80 period. This will come about through the recently established Nigerian National Fish Company (a joint venture with a Norwegian company) and the Nigerian National Shrimp Company a joint venture with an American company, Continental Seafoods. The Federal Government will also encourage State Governments to enter into similar ventures.

Huge fishing terminals have been planned which will include docking facilities for ocean-going fishing vessels, cold storage, processing plants, fuel storage, and shipways at a cost of \$16.7 million.

In a program to correct processing and marketing deficiencies, Federal and state agencies

will provide almost \$10 million in assistance through fishing cooperatives. These funds will be used for the construction of cold storage facilities, smoking kilns for use in remote areas, fish drying plants, dry storage and marketing sheds, and for the purchase of refrigerated trucks and barges.

The Third Plan also provides for manpower training and research projects. The Federal Government plans to expand the existing fisheries school and establish a new freshwater fisheries school. A new \$990,000 research vessel will be purchased to provide for longer range investigations in deeper water and more distant areas than

is possible with the Government's existing vessel. Other research projects include monitoring of pollution, development of an economical means of converting unsaleable fish into protein concentrate, conversion of fish and shrimp wastes to livestock feeds, and marketing studies.

The Nigerian Agricultural Bank is assisting in the development of the domestic fishing industry by providing equipment and gear to fishermen. The Bank is already in the process of purchasing three 70-foot fishing trawlers and has contracted with an American company (Quality Marine, Inc.) for construction of the vessels.

Chapter 24

FORESTRY AND WOOD PROCESSING

HIGHLIGHTS

Nigeria's timber industry is expected to undergo significant changes during the 1975-80 period. Up to now, timber has been the sixth largest source of foreign exchange for Nigeria (see table 24.1 for timber exports). Domestic demand, however, is increasingly consuming timber products which would otherwise be used for export. Further, this trend is expected to become more pronounced as the construction industry continues its accelerated expansion pace.

Nigerian authorities feel that such demands will deplete timber reserves within the next 15 years and therefore have targeted approximately \$180 million for revitalizing and further developing the forest industry during the Third Plan period. These funds will be applied primarily to forest plantation development, forest regeneration, protection forestry, forest inventory and studies, and infrastructure development. The implementation of these programs will be the responsibility of the state governments.

The Federal Department of Forestry will assist the states in their forest plantation programs by providing equipment, technical advice and financial grants.

The Federal and State Governments will also invest an estimated \$575 million in timber processing during the Third Plan period.

SECTOR ANALYSIS

Nigeria's forest reserves cover an area of over 37,056 square miles, or about 10% of its land area. They contain more than 600 tree species, of which roughly 100 are being cut and marketed under current technology (see table 24.2 for major Nigerian timber species).

The savanna woodlands of northern Nigeria contain the largest proportion of timber reserves (27,826 sq. miles). However, the high forest areas of the Western, Mid-Western and South-Eastern States are the most prolific source of industrial wood, accounting for over 90% of the total wood export of the country.

Timber reserves are regulated by the various State Ministries of Agriculture and Natural Resources. The State Ministries license timber concessions to timber mills and individual loggers

who, in turn, pay the states royalties, depending on the amount of timber cut or the size of the concession.

The primary responsibilities of the Federal Department of Forestry have been to conduct research as well as to coordinate and to assist in financing state-sponsored forestry programs.

Although there are over 400 timber mills operating in Nigeria, most in Western State, the timber industry still suffers from underdevelopment. Over half of Nigeria's mills employ fewer than three people. They operate with minimum equipment, which consists of a horizontal bandsaw, a circular saw, "saw doctor's shop," and a shed.

The log conversion ratio at these mills has been estimated as high as 55%. Inefficient, rudimentary equipment, however, has limited average mill output to around 40,000 cubic feet annually.

There are three major plywood factories currently operating in Nigeria: Swiss Nigeria Wood, Ltd., Piedmont Plywood, and African Timber and Plywood (AT&P). A significant portion of timber produced by these factories is exported. The remainder is used in the construction industry as well as for furniture production and other wood working industries.

AT&P, the largest factory, is a division of the United Africa Company (UAC) trading complex. It handles more than 7.2 million cubic feet of logs annually and produces plywood, veneer, lumber, blockboard, and prefabricated houses. Established in 1947, it is considered one of the largest and most modern plywood factories in Africa. Over 3,000 workers are employed in its highly integrated forest and milling business. Located at Sapele in Mid-Western State, it has timber

Table 24.1.—Nigerian timber exports, 1970-74

Year	Quantity (millions of cubic ft.)	Value ¹ (millions of U.S. dollars)
1970	7.8	1.1
1971	7.2	1.9
1972	7.4	2.0
1973	13.0	3.2
1974	31.8	9.0

1. Exchange rate: 1970-73 converted at ₦1 = \$1.52; 1974, ₦=\$1.62.

Source: Federal Office of Statistics, Lagos.

Table 24.2.—Nigerian exports of timber products, ¹ 1973

Type	Quantity thousands of cubic ft.	Value in thousands of U.S. dollars
Agba	452.0	680.0
African Mahogany	1,653.0	1,088.0
African Walnut	540.7	499.3
Gedundhos	194.0	239.0
Guarea	949.4	556.6
Iroko	543.6	327.3
Mansonia	225.1	444.8
Abeche	3,523.3	4,828.0
Omu	98.4	228.4
Opepe	151.6	223.9
Sapele	235.4	690.7
Abwra	1,285.8	1,982.0
Afara	176.0	270.5
African Celtis	23.4	45.1
Afzelia	378.0	875.7
Antiaris	554.8	746.2
Ceiba	230.0	252.8
Idigbo	76.1	120.6
Ilomba	91.6	103.0
Odoko	5.5	12.6
Okan .....	.3	.3
Okwen	87.8	123.3
Pterygota	61.7	84.6
Sterculia Brown	22.1	367.4
Sterculia Yellow	5.4	8.0
Utile	55.0	210.1
Curls .....	.2	4.4
Ogan	12.1	15.0
Berlinia	23.6	39.2
Camwood	11.6	18.5
Canarium	3.8	4.3
Cordia	63.5	83.1
Daniellia Agea	105.3	203.2
Danta	2.5	118.0
Ebony	28.8	149.2
Ekki	35.8	57.1
Erun	3.1	7.6
Makore	3.0	6.3
Essia	3.7	6.4
Erimado	4.3	3.0
Total	11,469.3	15,723.5

1. Includes wood in the rough, lumber, sawn, planed, tongued etc.

2. Converted from Naira at ₦1 = \$1.52.

Source: Federal Office of Statistics, Lagos.

concessions in Mid-Western and Western States. The firm plans to begin construction of Nigeria's first particle board factory by the end of 1975. The factory is expected to cost \$2.7 million.

The Federal and State Governments plan to take an active role in timber processing during the Third Plan period. They will spend some \$575 million on such projects.

The largest of these, a wood-working complex to be constructed by South-Eastern State, is expected to cost over \$4.9 million. The complex will include a timber mill with an annual capacity of 1.6 million cubic ft., a veneer plant with an annual capacity of 10 million cubic ft., a plywood factory with an annual output of 635,400 cubic ft., a chipboard factory with an annual capacity of

5,000 tons, and a furniture factory with an annual output of 1,500 pieces.

The Lagos State Government, in conjunction with Swiss-Nigeria Wood Ltd., plans to construct a \$2.4 million furniture factory by 1980.

The North-Central State Government plans to construct a \$574,000 saw mill and a \$500,000 chipboard factory.

Mid-Western State will construct a \$1.6 million window and door frames factory during the Third Plan period.

Other major projects include a pulp and paper factory planned for construction by the Federal Government during the 1975-80 period. A total of \$3.2 million has been earmarked for this project. The Western State Government will hold 10% equity participation in the project.

Additional information on wood products for the building industry is found in the chapter on construction materials manufacturing.

Table 24.3.—Nigerian reforestation programs 1975-80

State	Area to be planted (hectares)		Annual cost ¹ (millions of U.S. dollars)
	Annually	Total	
Federal	24,000	120,000	39.4
Benue Plateau	762	3,010	1.1
East Central	780	3,900	1.3
Kano	320	1,600	.4
Kwara	2,880	14,400	5.4
Lagos	476	2,380	.8
Mid-West	3,490	17,450	5.7
North-Central	1,200	6,000	1.9
North-East	1,090	5,450	1.6
West	7,130	35,650	11.8
North-West	392	1,960	.6
Rivers	—	—	—
South-East	1,200	6,000	1.9
Total	43,720	217,800	71.9

1. Calculated at ₦1,000 (\$1.645) per hectare.
Source: Commerce Survey Team.

Table 24.4.—Nigerian protection forestry programs 1975-80

State	Area to be planted (hectares)		Annual cost ¹ (millions of U.S. dollars)
	Annually	Total	
Benue Plateau	80	400	.1
East Central	200	1,000	.3
South East	200	1,000	.3
Rivers	160	800	.2
North-West	250	1,350	.4
North-East	250	1,250	.4
North-Central	250	1,250	.4
Kano	250	1,250	.4
Total	1,640	8,300	2.5

1. Calculated at ₦1,000 (\$1.645) per hectare.
Source: Commerce Survey Team.

Chapter 25

SEMI-ARID LAND DEVELOPMENT

HIGHLIGHTS

Nigeria plans to spend \$486.5 million for the planning and construction of irrigation facilities under the *Third National Development Plan (1975-1980)*. Most programs and projects slated for implementation are intended to boost crop production in semi-arid regions, particularly the six northern States, to close the gap between food demand and production. There are also projects that aim for export markets.

The Third Plan presents excellent sales opportunities for U.S. firms to work with Nigerians to develop and execute these projects and programs. Needed will be technology, services and equipment to irrigate and cultivate 440,000 hectares.

SECTOR ANALYSIS

Nigeria will undertake several major programs to develop its immense semi-arid agricultural potential under the *Third National Development Plan*. The Third Plan calls for an expenditure of \$477.5 million for the construction of irrigation facilities, primarily in the northern half of the country where there are prolonged periods of dry weather.

In addition, some \$9.0 million has been earmarked for irrigation feasibility studies during the Plan period. Some 444,000 hectares of land will be irrigated. Most of the contracts for feasibility studies and some design contracts for an area of approximately 276,000 hectares in the river basins and settlement areas were to be awarded in 1975.

Several studies, involving small-scale irrigation projects in North Central, Benue-Plateau, Kwara, North-Eastern and North-Western States, remain open to bidding.

Feasibility, design and construction work will be combined and carried out by a single firm in certain cases. State Governments and the Federal Government sometimes favor this approach because it saves time.

Among the few construction contracts awarded in 1975, the most important was the \$180-million contract granted in June 1975 to the Italian-Nigerian firm Impresit Bakolari Nigeria Limited for the building by 1980 of the Bakolari Dam in North-Western State.

The following large construction projects are planned for commencement during the Plan period 1975-1980 (total estimated expenditure or the project is in parentheses). Several are indicated as still requiring feasibility studies.

South Chad Irrigation Project (\$100 million).—This Federal project will irrigate 40,467 hectares south of Lake Chad.

Mada River Project (\$50 million).—A Federal project to irrigate approximately 30,350 hectares of small holdings.

Baga Polder Project (\$16.45 million).—The Federal Government plans to construct a 50-km polder and ancillary irrigation facilities serving an area of 40,469 hectares in North-Eastern State.

Karaduwa Project (\$33 million).—A Federal project in North-Central State involving four irrigation dams and the development of 32,000 hectares. No feasibility study has yet been done.

Gari River Irrigation Project (\$13.2 million).—Kano State will undertake the development of land and water resources. About 4,000 hectares are to be irrigated by 1980.

Challowa Gorge Dam Project (\$13.2 million).—Kano State plans to construct a major earth dam to supply 182,880 hectare-meters of water for downstream irrigation projects.

Tada-Shonga Rice Production Project (\$3 million).—Kwara State plans to develop a nucleus estate to be surrounded by 400 small farms. Approximately 2,145 hectares are to be developed within the Plan period.

Kwara Food Production Company Irrigation Projects (\$5.7 million).—Various projects are to be financed by this progressive Kwara State (Ilorin-based) agency.

North-Central State Projects (\$28 million).—Projects include Kangimi in Kaduna river basin, Galma, Dabaran, Kagoro, Ajiwa, and Birnin-Gwari. Most projects are at either the feasibility study or design stages, except for Kangimi where construction work is expected to begin soon.

Small Dam Irrigation Scheme (\$16 million).—North-Eastern State plans a feasibility study of small-to medium-size dams in preparation for the construction of two or three small dams out of a proposed 20.

Bakogi Irrigation Scheme (\$5.3 million).—North-Western State plans to construct a dam to irrigate roughly 2,000 hectares of land for multiple cropping.

Altogether, some 10 Federal irrigation projects

and 36 state projects involving construction work of one kind or another will come into operation during the Plan.

Several state governments, among them Benue-Plateau, East-Central, Kano, Kwara, North-Central, North-Eastern, North-Western, and Western, have drawn up plans for grain storage facilities (not always in connection with semi-arid land development) to reduce waste and as a hedge against crop failure. The total cost for all storage projects concerned amounts to \$38.5 million. Benue-Plateau State, for example, plans to spend \$10 million to build 27 primary storage facilities of 559-ton capacity each and 35 secondary storage facilities of 304-ton capacity each in strategic areas.

Neighboring Kwara State will be allocating \$3.3 million for nine 2,000-ton capacity storage tanks scattered about the State. The market will remain a small one until after 1980 but firms establishing a foothold before that date will likely have a major advantage.

Erosion from wind and water is a major and growing problem in northern Nigeria and several of the State Governments, as well as the Federal authorities, have soil conservation programs cost with combined estimated at \$31.2 million during the Third Plan period. Included in the programs are the establishment of a National Institute of Water Resources, a Soil and Water Conservation Training Center, and field measures which will include contour diking, the erection of shelter belts, terracing, and check damming.

American know-how derived from experience in semi-arid areas of the western part of the United States could play an important role in Nigerian semi-arid land development.

In addition to rivers and reservoirs, wells also are used as a source of water for irrigation in Nigeria. Most of the wells currently in use are the small hand-dug, open-pit variety. There is a growing interest, within geologically appropriate areas, however, in constructing horizontal wells. Thus, the use of pumps will be avoided and costs and problems of maintenance kept to a minimum. Kano State has instituted a feasibility study on the use of wells for irrigation purposes in the eastern part of the State. Other State Governments may initiate similar surveys. Depending on the outcome of these studies, a significant market might develop for equipment such as rotary drills, wet-boring, horizontal drill stem rigs, carbide-tipped or diamond core drill bits, small recirculating water pumps, cement slurry pressure tanks, and some standard plumbing tools and supplies.

Nigeria at the present time does not appear ready for more advanced technologies, such as those involving rainwater harvesting, run-off agriculture, reduced seepage losses, drip irrigation systems (except on an experimental basis),

reduced transpiration, and controlled environment agriculture. None of these techniques, with the exception of drip irrigation, is presently employed in Nigeria. Market promotion work such as field tests to obtain evidence of results under local conditions would be useful to convince Nigerian customers of the suitability of new processes.

Project Profiles

Karaduwa River Basin Irrigation Project

The Karaduwa project began in June 1970 as a North-Central State effort but it recently (1975) was taken over by the Federal Government. Completed preliminary studies envisage the eventual development of 32,500 hectares of irrigated land within the lower flood plains of the Karaduwa River and its major tributaries in North-Central State. Six dams, including one with hydro-electric facilities, and a number of reservoirs are envisaged to accomplish this objective. It is hoped that at least two of the six dams (at Zobe and Tashar Ganji) will be built during the current Development Plan, and 6,500 hectares will be placed under cultivation. Total cost for this phase of the project is estimated at nearly \$38 million. The phasing of the project over the Plan period is expected to be as follows:

- 1975/76—Completion of feasibility surveys with emphasis on design, appraisals, design drawings and tender documents.
- 1976/77—Construction of one of the six dams, to be sited at Zobe, and the concurrent development of 1,000 hectares of the pilot scheme.
- 1977/78—Construction of another dam near Tashar Ganji, plus additional development of 1,000 hectares to boost the pilot scheme in the basin to 2,000 hectares.
- 1978/79—Expansion of pilot to 3,000 hectares.
- 1979/80—Pilot expansion to 4,000 hectares.

Galma River Basin Irrigation Development Project

The Galma Project is the largest North-Central State undertaking in irrigated agriculture within the current Plan period. The pilot project currently involves some 50 hectares in Zaria where vegetables and wheat are being planted as dry-season crops and rice as the rainy-season crop. Project phasing over the Plan period is as follows:

- 1975/76—Conduct feasibility studies on development of an additional 125 hectares at present pilot site.
- 1976/77—Expand pilot scheme to 250 hectares along the periphery of the current Zaria dam.
- 1977/78—Develop an additional 500 hectares on the tributaries of the Galma at suitable sites e.g., Kuzuntu, Takalafia, etc. Construct a dam to be used as a res-

ervoir across Galma River, as proposed by the Water Resources Division of the Federal Ministry of Agriculture and Natural Resources.

1978/80—Develop additional 500 hectares to bring pilot to 1, 250 hectares.

Kano River Project (Phase I)

This large-scale Kano State project, with Federal participation, is centered around the recently (February 1975) completed Tiga Rapids Dam; it will provide dry-season irrigation of some 45,000 hectares of land. The project is divided into a first phase of 17,300 hectares around Kadawa, some 30 miles on the Kano-Zaria Road, and a second phase of 27,700 hectares around Wudil/Gaya. The dam will also make possible the reclamation of no fewer than 25,000 hectares of farmland in the Hadejia Valley.

Phase I is scheduled for completion during the current Plan period, utilizing water from the 10,900-hectare reservoir now forming behind the Tiga Rapids Dam. The Third Plan calls for the expenditure of \$58 million for land acquisition, the construction of sprinkler irrigation systems, 3 base camps, 12 operation camps, networks of delivery canals, and the development of the agricultural and livestock contents of the project. Inquiries regarding further details about service and equipment needs and tender documents can be addressed to the Permanent Secretary, Ministry of Agriculture and Natural Resources, Kano State, Kano.

EQUIPMENT AND SERVICE REQUIREMENTS

In the developing field of semi-arid land development in Nigeria, particularly good sales opportunities will exist for American firms capable of providing the following services, equipment, materials and technologies: consultancy services (especially feasibility studies), design and construction engineering; sprinkler and gravity irrigation systems, pumps, pipes, generators, earthmoving equipment, grain storage facilities; fertilizers, pesticides; soil conservation and well drilling technologies; and telemetric devices.

Looking toward significant sales beyond 1980, initiatives should be taken to familiarize potential Nigerian customers with more advanced technologies involving rainwater harvesting, run-off agriculture, reduced seepage losses, drip irrigation systems, reduced transpiration and controlled environment agriculture.

Semi-arid land development utilizing modern technology was not attempted in Nigeria until recently. No one company has a clear edge on the competition, and the market is wide open for

U.S. companies having appropriate equipment, technology and know-how. Unlike many other areas of the Nigerian economy, semi-arid land development presents a new opportunity for all concerned. The business will go to those enterprising firms that can convince the Nigerian customer of the superiority of what they have to offer.

In virtually all types of services and products used in semi-arid projects, decisions as to who will get contracts will be based primarily on performance considerations as regards suitability, quality, delivery and after-sale service. Price and credit will play a distinctly subsidiary role.

Pumps, Pipe, Generators, and Sprinklers.—Most of the pumps, generators and water dispersal systems now in operation come from the United Kingdom. However, many Nigerian customers feel that this equipment's performance under tropical conditions often leaves much to be desired. Products and services such as design and construction engineering, sprinkler systems, and water pumps and pipes, available locally and found to be acceptable, will probably be purchased from the local representatives.

The majority of pumps, pipes and generators used in transferring water from the source to the water dispersal system come from the United Kingdom—Lister, Alan Gwayne, etc. The Japanese and the Germans have been making some inroads recently in this still meager but growing market. The United States supplies about 10% of current needs but this share could grow significantly, especially if delivery and servicing capabilities are improved.

A majority of the 16,200 hectares presently under irrigation in Nigeria are fed by gravity systems. Sprinklers are becoming more popular, however, and the Nigerian Sugar Company at Bacita, Kwara State, is investigating the use of an American-manufactured drip system. Most potential customers appear to have an open mind about the selection of the system and the manufacturer of equipment to use. An interest in American products is evident but is hindered primarily by a lack of knowledge about possible American suppliers.

Earthmoving Equipment.—Much earthmoving equipment will be needed for irrigation projects, particularly those involving dams (see Sector Analysis), as almost all the dams to be built will be composed of landfill. Significant purchases of bucket loaders, crawler tractors and motorized scrapers are also indicated.

Agrochemicals.—Specialized fertilizers for crop production on irrigated lands are expected to grow in importance over the next 5 years. Those most likely to be used are ammonium sulphate, superphosphate, urea, and compound fertilizers such as 25-15-0 and 20-20-0. In addition,

chemicals such as calcium ammonium nitrate and aluminum sulphate will be used. Almost all requirements will have to be imported.

Planned purchases of fertilizers, soil conditioners, and storage and transport facilities by the six Northern States where semi-arid soil conditions prevail total \$156.5 million. The breakdown by State is as follows: Benue-Plateau, \$18 million; Kano, \$38 million; Kwara, \$24.7 million; North-Central \$33 million; North-Eastern, \$33 million; and North-Western, \$27.8 million.

Planned purchases of insecticide, pesticide, herbicide and spraying equipment by the six northern States through 1980 total approximately \$4 million. The Federal Government can also be expected to make significant purchases during the Plan period. Insecticides favored in the past include Kokotone, Gamalin "20", Betox 85, Gamatox Super Fluid Concentrate, and Coopane. Major quantities of DDT will also be bought. Pesticides expected to be used include: copper sulphate, hydrated lime, Dithano N45, Wax Rex Treseal, Tillex, Kankardood, Founac 2, T.B.192, and Paranitrophenol. Herbicides will include Grammoxone, Reglone and Germinine 7. Many kinds of spraying tools and associated equipment will be used. Among the products involved are: Knapsack CP3 sprayers, tapping buckets, tapping buckets with lids, jute bags, aluminum acid cans and topping knives.

High Technology.— Remote sensing techniques, gamma ray spectrometry and photographic systems and spectrometry are being introduced. Several government officials involved in agricultural development expressed an interest to the Nigerian Survey Team with regard to the practical uses of such technology. However, more active educational and promotional campaigns will have to be carried out before such techniques are widely accepted within Nigeria.

MARKETING APPROACHES

Most market observers agree most sales will require several preliminary meetings between the supplier and the various technicians and decision-making officials. There is no substitute in Nigeria for direct personal contacts. Where appropriate, such business meetings should be augmented by

the use of visual devices such as pilot demonstrative brochures, catalogs, charts, photos and slides. Arrangement of such meetings will often require persistence and patience on the part of the American businessman but the effort expended is often compensated by the friendly no-nonsense, direct response of the Nigerians.

American equipment manufacturers who seek a fair share of the business will want to appoint a distributor capable of stocking models and types considered to have a steady demand and providing reliable product service as well as other marketing functions. Other firms, whose business prospects do not require a full-service distributorship, would be best advised to appoint a reputable sales agent who has the appropriate contacts with the purchasing organizations to secure orders. The establishment of a direct sales subsidiary, usually including Nigerian participation, has been the trend among U.S. and other foreign manufacturers where the nature of the market warrants it.

Most purchases connected with semi-arid land development projects have been and will be done on a tender basis, usually with a 2- or 3-month time requirement. This is true for both State and Federal projects. Few purchases are done directly or through an agent. There is a growing tendency, however, for consultancy service contracts to be awarded to known suppliers registered in Nigeria. This practice less frequently occurs with regard to design and construction engineering work.

General inquiries concerning projects should be addressed to the appropriate State or Federal Ministry of Water Resources to the attention of the Permanent Secretary.

The Commercial/Economic Section staff of the American Embassy in Lagos and American Consulates in Ibadan and Kaduna are able to provide assistance to American business visitors.

To acquaint the Nigerian customer with what the United States can offer toward the development of the drier zones within Nigeria, and at the same time to familiarize the American firm with what Nigeria has to offer on the way of sales opportunities, the U.S. Department of Commerce has scheduled for February 1976 a technical sales seminar in Nigeria on semi-arid land development. It is expected that the seminar will have a wide and representative sampling of American firms capable of supplying many of the needs for goods and services detailed in this report.

ADDITIONAL INFORMATION ON NIGERIA

References

Nigerian Publications

These publications are available through the Embassy of Nigeria or directly from the Government Printer, Lagos.

Third National Development Plan 1975-80, Ministry of Economic Development, the Central Planning Office.

Nigerian Trade Summary, Federal Office of Statistics, (Quarterly).

Economic Indicators, Federal Office of Statistics, (Monthly).

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Nigerian Trade Journal, Ministry of Information (Quarterly).

Official Gazette, Ministry of Information.

Nigeria Yearbook, Times Press Ltd. (Annual).

West Africa, Times Press Ltd. (Weekly).

U.S. Government Publications

These publications are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Marketing in Nigeria, Department of Commerce, Bureau of International Commerce, OBR 74-66, December 1974.

The Agricultural Economy of Nigeria, Department of Agriculture, Economic Research Service, ERS Foreign 329, March 1972.

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Background Notes—Nigeria, Department of State, (Biannual).

AID Data Book, Department of State, Agency for International Development (updated as necessary).

Area Handbook for Nigeria, 1972, Department of Defense, DA Pam 550-157.

Other Publications

African Update, African American Institute, U.N. Plaza, N.Y., N.Y., 10017, (Bimonthly).

Doing Business with Nigeria—A Standard Bank Business Guide, Standard and Chartered Banking Group, Ltd., London, England, July 1973.

Export Shipping Manual and U.S. Export Weekly, International Trade Reporter, Bureau of National Affairs, Washington, D.C.

Exporters Encyclopedia, Dun and Bradstreet, New York, N.Y.

International Financial Statistics, International Monetary Fund, Bureau of Statistics, Washington, D.C.

Investment Laws of the World—Nigeria, Oceana Publications, Dobbs Ferry, N.Y.

Nigeria—A Barclays International Economic Survey, Barclays Bank International, Ltd., London, England.

Comprehensive Market Report #1, Nigeria, J.S. Rundt and Associates.

Nigeria; Options for Long-Term Development, International Bank for Reconstruction and Development, Johns Hopkins Press.

Information Guide for Doing Business in Nigeria, Price Waterhouse & Co. U.S.A., July 1974.

Shipping to Nigeria

Documents

Shipments to Nigeria must be supported by certain properly executed documents. The exporter must supply: (a) invoice and declaration of value incorporating a certificate of value and a certificate of origin; (b) bill of lading or air waybill; (c) packing list, if not incorporated in the invoice; and, depending on the nature of the shipment; (d) health or sanitation certificate issued by the appropriate government agency in the country of origin. The importer, in order to effect entry, must fill out the appropriate Nigerian entry form in four copies and a certificate of value from information in documents furnished by the exporter. The importer is also responsible for (a) import license, when required, (b) other special permits or certificates, as applicable, in the case of vaccines, arms and ammunition, certain chemicals, alcohol, tobacco, etc.; (c) certificate of clearance for industrial machinery and equipment for capital investments of over \$155,000.

The only invoice on which goods may be entered into Nigeria is a special form available from commercial printers (such as from Unz & Co. in New York City or Wolcott's Stationers in Los Angeles). It must be executed strictly in accordance with detailed instructions. Experience has shown that a maximum of six adequately described tariff items may be accommodated in the space provided on one form. Continuation sheets are not permitted. Invoices covering piece goods consisting of mixed materials must show the percentage of such materials.

Among the more important details to be contained in the invoice is a clear indication whether the exporter is the manufacturer, supplier or in any way connected with the importer of the goods. Total f.o.b. and c.i.f. prices of the goods showing component costs, i.e., unit price, packing, freight, insurance,

commissions, and other charges must be clearly indicated.

The invoice must be signed by the manufacturer, supplier or exporter, and witnessed. Company stamps and facsimile signatures are unacceptable on the original invoice. Photo copies are permitted as duplicates only. Supporting documents to the original invoice may be photo copies.

Consular legalization is not required unless requested by the importer. If requested, a consular legalization is obtainable normally in one business day from the Nigerian Consulate in New York City for \$3.00 per signature.

When the exporter and the supplier or manufacturer are not the same, the original manufacturer's invoice should accompany the exporter's invoice. If that is unavailable, certification that the goods to be exported comply with the particulars in the invoice must be accomplished on the invoice by a bank (preferably with an international department) or a U.S. Chamber of Commerce approved for the purpose by the Nigerian Federal Ministry of Finance. (Chambers of Commerce in most large U.S. cities are approved.) Acceptable text might be: "I certify that supplier's (manufacturer's) invoices have been produced and compared with the consigning firm's invoices and that the latter truly represent particulars of the goods and the selling price, together with all charges up to the time of landing." Or, alternatively: "We herewith declare an oath that all statements made in this invoice are in accordance with the actual prices to be paid. Moreover, we declare that no agreement exists which may lead to an alteration of these prices and furthermore, that the goods are of U.S. (or other) origin."

No special bill of lading or air waybill form is required. Separate bills of lading or air waybills must be prepared for each port or interior destination. Shippers should make certain that bills of lading are correct in every detail and that trade names are qualified by sufficient description of such goods. Descriptions, shipping marks and numbers on the ship's manifest, bill of lading, packing list and invoice must all match with the actual goods.

A separate packing list showing packing detail, description of goods, weights, marks and numbers should be attached to the special Nigerian commercial invoice form since there normally is insufficient space for such detail.

Special certificates, required for certain animals, animal products, plants, seeds, soils, used merchandise, etc., for health and sanitation reasons and issued by authorities in the country of origin are, in many cases, required by the importer to obtain special permits or licenses granted for entry by Nigerian authorities.

In order to speed port clearances, avoid heavy storage fees, assist the importer in entering the goods, and initiate payment action, exporters should forward all shipping documents by airmail direct to the Gov-

ernment Coastal Agent, Coastal Agency, 3 Creek Road, Apapa, Nigeria, immediately after ship departure so that the documents will arrive before the goods. For shipments by air, it is advisable to forward documents direct to whoever is expediting entry. It is urged that bills of lading or air waybills contain a "Notify Address" at the port of entry of the goods, especially in Lagos or Apapa.

Applications for foreign exchange to pay for imported goods must be accompanied by the exchange control copy of the customs bill of entry, properly stamped with date of clearance, and a copy of the bill of lading or air waybill. It is advised that U.S. shippers provide at least one extra copy of the bill of lading to facilitate this procedure since normally, applications for foreign exchange submitted to the Central Bank by the importer's commercial bank require 30 days for processing.

U.S. Exporter Documents Checklist for Shipments to Nigeria

Customer Order, if available in seven copies.
Invoice and Declaration of Value Required for Shipments to Nigeria; Certificate of Value; Certificate of Origin, Original and six copies.
Packing List; if inadequately covered on Invoice Form, Original and five copies.
Bill of Lading or Air Waybill, original and seven copies.
License, permits, certifications, when applicable, original and five copies.
U.S. Shippers Export Declaration (Required by the United States for any shipment valued over \$250 or when a validated U.S. export license is necessary.) in five copies.

Entry and Storage

Goods imported into Nigeria may be entered for consumption, or for warehousing, transit or transshipment. Entry of goods must be accomplished within 3 days after landing if storage charges are to be avoided. Preentry is permitted and is advisable to prevent costly warehousing charges. Preentry is required in the case of hazardous goods of any kind.

Goods properly entered for transshipment or transit are exempt from duty. Goods entered for warehousing are not subject to duty until removed and reentered for consumption. Goods entered in transit are deposited under bond in transit sheds, a government warehouse or other secure place under customs control until transshipment. They may remain so up to 7 days free of charge. However, any handling or other warehousing charges must be paid before transshipment.

Goods may be examined and samples taken without payment of duty, with customs officials' permission. However, duty is payable on the full quantity or value entered and no duty allowance is made for samples

which customs officials may require for examination or analysis.

Goods dutiable on an ad valorem basis may not be withdrawn from storage piecemeal; the entire shipment must be withdrawn at once. Any part of a shipment of goods, dutiable according to other than ad valorem standards, however, may be removed from storage provided duty is paid on the portions removed and entered for consumption.

Under Customs supervision, warehoused goods may be packed, repacked, sorted, separated, or otherwise rearranged as may be necessary for their preservation or for sale or shipment. Goods may be transferred to other warehouses or removed temporarily under bond if Customs officials approve.

Goods not worth the duty assessed on them may be destroyed without payment of duty, if the Board of Customs and Excise approves. Bulky or dangerous goods are likely to incur extra storage charges if stored under government supervision and control.

Goods in transit or pending transshipment must be rewarehoused or reexported or entered for consumption within 2 years or be subject to government disposal or sale.

A bill of sight may be presented by the importer to allow examination of goods in the company of Customs officials in the event of inadequate documentary evidence of shipment interfering with perfect entry.

There are no free ports or free zones in Nigeria.

Unclaimed Goods

Generally, a month after discharge, unclaimed goods are transferred to a government warehouse. Goods which have remained in a government warehouse for 1 month may then be advertised for sale in the *Federal Republic of Nigeria Official Gazette*. One month after the appearance of this advertisement, unclaimed goods will be sold and proceeds used to pay for duties, storage, handling, auctioning and other charges due. The remainder, if any, is paid to the owner of the goods if he applies within 1 year of sale; otherwise, the surplus is payable to the account of the Federal Government.

Goods so sold must be removed by the purchaser within 14 days or the goods are subject to resale by the government.

Labeling, Marking, and Packing

With the changeover to the metric system as of January 1, 1973, all packages, bottles and containers of all products marketed in Nigeria should show metric dimensions, weights or volume and their net contents must be labeled in metric units. All new equipment imported into Nigeria must be calibrated in metric units.

Nigeria does not require that origin of goods appear on labels, in most cases, but it is to the advantage of U.S. exporters to label goods "Made in U.S.A." because Nigerians tend to prefer American goods.

Senate Concurrent Resolution 40, adopted July 30, 1953, invites U.S. exporters to inscribe, insofar as practicable, on the external shipping containers in indelible print of a suitable size: "United States of America." Although such marking is not compulsory under our laws, U.S. shippers are urged to cooperate in this publicizing of American-made goods.

The *Merchandise Marks Ordinance* forbids importation of goods labeled in such a way as to infringe trademark rights of other manufacturers. Goods bearing trade or other marks which are false or misleading are also prohibited, especially use of the Royal Arms of Great Britain or facsimiles.

All packages and goods imported into Nigeria should be marked according to sound shipping practice, in the absence of specific Nigerian regulations. The Nigerian High Commission has issued guidelines for marking containerized imports requiring that identifying marks and numbers be clearly and indelibly displayed on the container and agreeing with

the ship's manifest. When the container holds more than one consignment of goods or a consignment consists of goods of a different description, such details must also be shown on the ship's manifest.

Packages or containers of sales samples should be marked "Free Sample" or "Free Specimen" and the address side of the container must be marked "Sample of Merchandize."

Special marking regulations cover a limited group of articles, coinciding in most cases with those imports requiring licensing, certificates or permits, including, for example: flour, gunpowder, nails, rice, salt, some soaps, yams, wool, crochet cotton, bluing, candles, sugar, etc.

Parcels should be securely packed and wrapped in water-proof covers so as to guard against the elements, pilferage and rough handling for an inordinant period. Goods packed in straw may be refused entry due to limitations on material, such as straw originating from small cereals.

Nigerian Ministerial Responsibilities¹

Head of the Federal Military Government, Commander-in-Chief of the Armed Forces (Cabinet Office)

Office of the Head of Government and Cabinet Secretariat
Award of Titles of Honour and Decorations
Co-ordination of the activities of the Federal Ministries and Extra-Ministerial Departments
Constitutional Matters
Government Offices—Policy and Allocation
National Population Census
National Disasters
Nigeria Police Force
Policy Research and Analysis
Relations with State Governments
Security and Public Safety
Tribunals and Commissions of Inquiry
Nigerian Council for Science and Technology

Defense

National Defense and Security, including Defense of Territorial Waters and Economic Zones
Clearance of Foreign Military Aircraft and Warships
Defense Agreements
Defense Equipment
Liaison with Armed Forces of Foreign Countries
Local Forces including Army Cadet Forces and Cadetship
Matters of Policy, Establishments, Recruitment, Finance, Training and Operations connected with the Nigerian Armed Forces
Resettlement Schemes for serving members of the Armed Forces
War Graves
Relations with Defense Industries Corporation

Agriculture and Rural Development

Agriculture, Forestry, Fisheries and Veterinary, including Research and Development
Botanical and Zoological Gardens

Co-ordination of Matters relating to Agriculture and Rural Development with State Governments
Game Reserves and Wild Life
Granting of Licences for hunting and exporting wild animals
Rural Development
Strategic Food Reserve
Relations with the following bodies:
Agricultural Research Council of Nigeria and Research Institutes under its aegis
Commonwealth, Agriculture Bureau
International Rubber Study Group
International Institute of Tropical Agriculture
Consultative Group on International Agricultural Research
Scientific, Technical and Research Commission of the Organization of African Unity
West African Rice Development Association
International Committee for the Control of Migratory Locust
International Office of Epizootics
World Food Council
United Nations Food and Agricultural Organization
Nigerian Agricultural Bank

Civil Aviation

Airports Development and Management
Authorization of scheduled and non-scheduled flights
Civil Aviation: Regulatory and other Services
Meteorological Services
Provision of Air Safety Services: Nigerian Aerodromes
Relations with the following bodies:
Nigeria Airways
Nigerian Airports Authority
Nigerian Civil Aviation Training Center, Zaria
International Civil Aviation Organization

Communications

Posts
Telecommunications
Relations with the following bodies:

¹ Effective July 1, 1975.

Source: *Official Gazette*, Vol. 62, No. 34, July 16, 1975.

Nigerian External Telecommunications Limited
Universal Postal Union
International Telecommunications Union
International Telecommunications Satellite
Organization

Co-operatives and Supply

Bulk Purchasing and Supply
Co-operative Education and Training
Disbursement of Federal and Foreign Assistance to
the Nigerian Co-operative Movement
Partners Co-operatives
Inter-African and other International Co-operative
Matters
Inter-Governmental Co-operation in Co-operative
Societies activities
Supervision of National Co-operative Societies and
the implementation of development policies relat-
ing to National Co-operative projects
Relation with the following bodies:
Nigerian National Supply Company
Central Labour Organizations on Co-operative
Matters

Economic Development

Censuses (excluding population census)
Co-ordination between Ministries in Economic
Matters
Co-ordination and Presentation of Applications for
External Technical Assistance
Economic Intelligence
Economic Planning and Development
Inter-Governmental Co-operation in Economic Matters
National Manpower Board
Statistics
Relations with the following bodies:
Chad Basin Commission
Commonwealth Economic Committee
Council for Management Education and Training
Economic and Social Commission of the Organiza-
tion of African Unity
Economic Community of West African States
(ECOWAS)
River Niger Basin Commission
Nigerian Institute for Social and Economic Research
United Nations Economic Commission for Africa
United Nations Development Programme
Council for Management Education and Training

Education

Academic Research
Citizenship and Leadership Training Centers
Co-ordination of External Aid for Education
Education Broadcasts
Educational Guidance and Counseling
Educational Library Services
Educational Statistics
Federal Education Advisory Services Inspectorate
Federal Scholarships
Institutions of Higher Education
Inter-governmental co-operation in Educational
Matters
National Register of High Level Manpower-in-
Training
Overseas Study
Vocational Guidance
Relations with the following bodies:
National Universities Commission
University Councils

United Nations Educational, Scientific and
Cultural Organization
West African Examinations Council

Establishments

Co-ordination of Gradings in the Civil Services
(N.C.E.) and in Para-Statal (C.E.C.)
Control of Executives and Secretarial Classes,
Cadres of Library Staff and Stores Staff
Establishment Matters: Staff Complements,
Gradings, Conditions and Appointments
Organization and Methods
Pensions (Military) Assessment Board
Personnel Policies and Practices
Public Service Management and Reforms
Salary Reviews
Salaries, Wages, Allowances, Pensions, Gratuities,
Conditions of Service including the implementa-
tion and continuous review of Civil Service
Rules (Except Appointments, Promotions and
Discipline)
Staff Development: Staff List, Staff Statistics
Staff Negotiation Councils and the Direction of
Staff Negotiations generally
Relations with:
Administrative Staff College of Nigeria (ASCON)
Federal Government Staff Housing Board

External Affairs

Conduct of Government Business relating to Foreign
and Commonwealth Affairs
Collection and Collation of information about
other countries
Consular matters
Co-ordination of Arrangements for International
Conferences in Nigeria
Diplomatic Mail
Emigration
Establishment and Administration of Nigeria's Diplo-
matic and Consular Posts
Passports and Travel Certificates
Pilgrimage Arrangements
Protocol and Ceremonial in so far as it affects
the Diplomatic Corps and Foreign Visitors
Relations with Diplomatic Corps in Nigeria
Repatriation of Destitute Nigerians
Seamen's Identity Certificates
Training of Nigerians for Overseas Representation

Finance

Banks and Banking
Bills of Exchange and Promissory Notes
Capital Issues
Central Bank of Nigeria
Credit Control
Currency, Coinage and Legal Tender
Ex-enemy Property
Exchange Control
External Borrowing
Federal Accounts and Budgetary Control
Federal Savings Bank
Federal Revenue, including Customs and Excise,
Taxes on Incomes and Profits and Royalties
Government Investments in Banks
Insurance of Government Property
Internal Borrowing
Monetary Policy
Public Debt
Revenue Allocation Arrangements

Trustee Securities
Relations with International Financial Institutions
Relations with the following bodies:
Nigerian Bank for Commerce and Industry
Nigerian Security Printing and Minting Company Limited

Health

Chemistry Services
Drugs Addiction
Drugs and Poisons
Medical Laboratory and Forensic Science Services
Medical Research
Pharmacy
Port Health and Quarantine
Public Health
Registration of Medical Practitioners, Nurses and Pharmacists
Registration of Radiographers, Physiotherapists and other Medical Auxiliaries
Relations with the following bodies:
Midwives Board of Nigeria
Nigeria Medical Council
Nigerian Institute of Laboratory Technologists
Nursing Council of Nigeria
Pharmacists Board of Nigeria
Teaching Hospital Management Boards
United National International Children's Emergency Fund
West African Health Secretariat
World Health Organization

Housing, Urban Development and Environment

Building Research
Construction and Maintenance of Government Quarters
Housing Policy and Development
Parks and Gardens
Pollution and other Environmental Matters
Staff Housing Schemes
Urban Planning and Development
Relations with the following bodies:
Nigerian Building Society
Federal Housing Authority

Industries

Aid to Industry
Co-ordination and Inter-Governmental Co-operation on Industrial Development Matters
Government Investment in Industrial Undertakings
Incentive for Industrial Development
Industrial Co-ordination and Co-operation with African and other countries
Industrial Development
Industrial Research
Industrial Training
National Industrial Planning
Small-scale Industries
Standardisation and Quality Control
Relations with the following bodies:
Industrial Training Fund
Nigerian Enterprises Promotion Board
Nigerian Industrial Development Board
Nigerian Standards Organization
Nigerian Steel Development Authority

Information

Archives
Antiquities
Culture
External Publicity
Film Production
Libraries
Newspapers
Printing of Gazette and Legislation
Printing and Publishing for the Government
Public Relations and Information Services
Radio and Television
Relations with the following bodies:
Commonwealth Institute
National Library of Nigeria
Nigerian Broadcasting Corporation
Federal Government Newspapers Corporation
National Council for Arts and Culture
National Committee on Archives
National Antiquities Commission

Internal Affairs

Aliens
Censorship of Cinematograph
Citizenship of Nigeria
Deportation
Expatriate Quota Allocation
Ex-Servicemen's Welfare
Federal Elections
Fire Services
Immigration
Metals and Badges containing the National Flag and the National Coat of Arms
Movement of Persons in Nigeria
National Day Celebrations
Permit for foreign participation in Businesses
Prisons and other Institutions for the Treatment of Offenders
Public Holidays
Registration of Voluntary Organizations
Registration of Marriages
Repatriation of Aliens
Visas for entry into Nigeria
Relations with the following bodies:
Civil Defense
Electoral Commissions
Nigerian Legion

Attorney-General of the Federation and Commissioner for Justice

Administration of Estates
Extradition
Evidence
Legal advice to Ministries and extra-Ministerial Departments
Legal Education
Legal Practitioners
Matters connected with the Administration of Justice
Notaries Public
Petitions of Right
Public-Trustees
Relations with the following bodies:
Body of Benchers of the Nigerian Bar
Advisory Council on the Prerogative of Mercy
Nigerian Law School

Labour

Conditions of Employment
Industrial Relations
Employment Services
Workmen's Compensation
Factory Inspection
Trade Unions, including Registration of Trade Unions
Trade Testing
Welfare of Labour
Social Security
Relations with the following bodies:
 Organization of African Trade Union Unity
 Industrial Arbitration Tribunal
 International Labour Organization
 National Provident Fund

Mines and Power

Electricity
Explosives
Geological Surveys
Mines, Minerals and Quarries (other than Petroleum)
Relations with the following bodies:
 National Electric Power Authority
 Nigerian Mining Corporation
 Nigerian Coal Corporation

Petroleum and Energy

Government Investment in Oil Industry
Petroleum
Natural Gas and Liquid Petroleum Gases, including their storage, production and distribution
Other Petroleum products, including their storage, production and distribution
Nuclear and Solar Energy
Relations with the following bodies:
 International Atomic Energy Commission
 Nigerian Refining Company Ltd.
 Nigerian National Oil Corporation

Social Development, Youth and Sports

Co-ordination and Supervision of Sporting Activities
Inter-Governmental Co-operation in Social Development Activities
Social Welfare
Sports Development
Voluntary Youth Organizations—National and International
Voluntary Organizations
Youth Development
Relations with the following bodies:
 Directorate of the National Youth Service Corps
 National Emergency Relief Agency
 National Sports Commission

Trade

Bankruptcy and Insolvency Bills of Sale Companies Copyright
External Trade Federal Produce Inspection Service
Government Investment in Hotels Insurance Inter-State
Commerce Monopolies, Combines and Trusts Patents, Trade
Marks, Designs and Merchandise
Marks Price Control Registration of Business Names Tourism
Trade Fairs and Exhibitions Weights and Measures Relations
with the following bodies:
 Nigerian Stored Products Research Institute
 Nigerian Produce Marketing Company Limited
 Nigerian Tourist Board
 National Insurance Corporation of Nigeria

Transport

Inland Waterways
Maritime Shipping and Navigation
Navigation—Issue of Certificate of Competency
Ports
Railways
Relations with the following bodies:
 Government Coastal Agency
 Nigerian National Shipping Line
 Nigerian Ports Authority
 Nigerian Railway Corporation

Water Resources

Control of Water Resources
Dams Development and Irrigation
Development of River Basins
Exploration and Development of Underground Water
Hydrological and Hydro-geological Investigations
Water Supply Undertakings
Relations with the following bodies:
 International Water Organizations
 Lake Chad Basin Commission
 River Basins Authorities
 River Niger Basin Commission

Works

Construction, Alteration and Maintenance of Federal
Public Works, vis. Public Buildings (other than
Government Quarters) and Engineering Works
Development and Operation of Federal Trunk Roads
 including Regulation of Traffic on Federal
 Trunk Roads
Federal Surveys
Lands
Protection of the Sea Coast against erosion
Road Research
Road Safety
Relations with the following bodies:
 Architects Registration Council
 Council of Registered Engineers of Nigeria
 Estate Surveyors and Valuers Registration Board
 Quantity Surveyors Registration Board
 Surveyors Licensing Board

U.S. GOVERNMENT SERVICES FOR AMERICAN EXPORTERS

Marketing Assistance and Information Services

Foreign Promotional Events

The Department of Commerce sponsors a variety of promotional events designed to assist American firms and their representatives in developing export markets. Organized and staged by the Office of International Marketing (OIM), the events described below are utilized by U.S. exporters to penetrate the Nigerian and other markets, increase sales, and find agents and distributors for their products.

Commercial Fairs.—Commerce-sponsored exhibitions of U.S. products of high sales potential, usually of a major single industry, staged in important international trade fairs.

Solo Exhibitions.—Export promotions planned, mounted and managed by the U.S. Department of Commerce in markets that offer promising export sales opportunities but which do not afford regularly scheduled fairs for the display of U.S. products to be promoted.

Specialized U.S. Trade Missions.—U.S. Department of Commerce organizes and sponsors Trade Missions covering selected product themes based on available market research and Foreign Service recommendations; Commerce establishes the overseas itinerary, pays the Mission's operating expenses, and provides an Advance Officer and a Mission Director.

Technical Sales Seminars.—These events, aimed at high technology markets, combine practical panel discussions by U.S. technology experts with individual private appointments. Additionally, these teams of U.S. industrial representatives on multi-country itineraries receive U.S. Foreign Service briefings, tour local installations, and conduct sales interviews, according to each represented company's marketing objectives.

Catalog Exhibitions.—Special displays of company catalogs, usually of a single industry, to test markets, develop sales leads, and locate agents and distributors.

A listing of Commerce-sponsored events in Nigeria is furnished in the Overview at the front of this publication.

In addition to the above promotional techniques, the Department of Commerce also

utilizes the following types to assist U.S. firms in promoting export sales:

U.S. Trade Center Exhibits.—U.S. manufacturers of specific products with prime market prospects and identified end users are drawn together at U.S. trade promotion facilities abroad, backed up by intensive promotion campaigns to attract the right buying audience.

Between-show Promotions.—Single U.S. company product or service promotions in U.S. Trade Centers, sponsored, organized and conducted by the companies themselves or their representatives abroad.

Joint Export Establishment Promotions (JEEPS).—Tailor-made promotions designed to help small groups of U.S. manufacturers of related products to inexpensively penetrate new markets on a shared-cost basis.

U.S. Trade Promotion Facilities Abroad

U.S. trade promotion facilities abroad provide U.S. manufacturers with a unique method of testing and selling in key foreign markets through commercial show rooms established in central marketing areas where the potential for American products is continuous.

There are U.S. trade promotion facilities in the following cities: In *Europe*, Frankfurt, London, Milan, Moscow, Paris, Stockholm, Vienna, and Warsaw; in *Asia*, Beirut, Osaka, Seoul, Singapore, Taipei, Tehran, and Tokyo; in *Australia*, Sydney; and in *Latin America*, Mexico City.

Information on exhibitions at U.S. trade promotion facilities abroad may be obtained from the Country Marketing Managers or the Commerce district offices listed on the inside back cover of this Survey.

Country Consultants

Country Marketing Managers (CMMs) provide U.S. firms with marketing information by specific country, counseling on the preparation of

effective marketing plans, aids in selecting best opportunity markets and assistance in participating in Commerce trade promotion activities. The CMM also can assist in obtaining other foreign business information available within the U.S. Government.

Popular among American businessmen seeking up-to-date marketing information are these publications available through Country Marketing Managers:

- ♦ *Overseas Business Reports* cover marketing and "doing business" information, economic data, and trade statistics in specific countries. Approximately 70 reports are issued annually.

- ♦ *Commerce America*, Commerce's biweekly magazine, contain reports on economic trends, trade developments, and Commerce-sponsored trade events.

- ♦ *Global Market Surveys* condense the findings of field research conducted in 20-25 of the best country markets. Global Market Surveys have either been published or are scheduled to be published through 1977 on the following themes:

- Agricultural Machinery and Equipment (1973)
- Micrographics Equipment and Supplies (1973)
- Biomedical Equipment (1973)
- Computers and Related Equipment (1973)
- Materials Handling Equipment (1974)
- Electronics Industry Production and Test Equipment (1974)
- Printing and Graphic Arts Equipment (1974)
- Electronic Components (1974)
- Metalworking and Finishing Equipment (1975)
- Avionics and Aviation Support Equipment (1975)
- Process Control Instrumentation (1975)
- Food Processing and Packaging Equipment (1975)
- Air and Water Purification and Pollution Control Equipment (1976)
- Laboratory Instruments (1976)
- Business Equipment and Systems (1976)
- Electric Energy Systems (1976)
- Communications Equipment and Systems (1976)
- Building Materials and Construction Equipment (1976)
- Computers and Peripheral Equipment (1977)
- Medical Equipment (1977)
- Printing and Graphic Arts Equipment (1977)
- Equipment and Components for the Electronics Industry (1977)
- Metalworking and Finishing Equipment (1977)

- ♦ *Country Market Surveys* are separate printed releases of the individual country reports included in Global Market Surveys.

- ♦ *Country Sectoral Surveys* illuminate the factors creating sales opportunities in market sectors in subject countries. They discuss growth

by industry sector and the demand for U.S. capital goods over the next 5 years. The first sectoral report, *Brazil: Survey of U.S. Export Opportunities*, is now available, and a report on Venezuela is in preparation and scheduled for release soon after this *Survey*.

- ♦ *Special reports* are prepared on timely opportunities and developments. Typical of these are: Impact of Currency Realignment on U.S. Exports to Germany (1973), The Market for Selected U.S. Capital Goods in Ecuador and Peru (1975), The Australian Market for U.S. Consumer Goods (1975), and a report on the international market for U.S. consumer goods (in preparation).

In addition, Country Marketing Managers receive an enormous quantity of information, both published and unpublished, on their countries. This data comes from private and public sources, American and foreign. It includes periodic reports received from the commercial sections of U.S. Embassies on selected industries or product categories, "best prospects" for sales in the coming year, and new developments and opportunities of special interest to the U.S. business community.

The Country Marketing Manager provides guidance and direction in commercial activities to the U.S. Foreign Service—Department of State, Trade Center Staffs, Commercial Fairs staffs, and other trade promotion personnel. This includes the planning and implementation of trade promotional activities listed earlier ("Foreign Promotional Events") within the respective country or countries. The CMM is the focal point in Commerce for the development and implementation of the annual Country Commercial Program, jointly prepared by Commerce and the Foreign Service. This operational planning document establishes objectives and priorities for U.S. Government trade promotion and support of U.S. business by country, and the actions to be undertaken to achieve them.

For further information and assistance on marketing in Nigeria, please write:

Country Marketing Manager—West Africa
U.S. Department of Commerce
Washington, D.C. 20230

CMMs for other areas are listed on the inside back cover.

Export Information Services

The export information services described below can be obtained by contacting the U.S. Department of Commerce, Office of Export Development, Export Information Division, Room 1033, Washington, D.C. 20230, or the nearest of the Department's 43 district offices (listed following this section). Recently

modernized data handling and retrieval techniques now make many services available in a fraction of the time previously necessary.

Trade Lists

Names and addresses of foreign distributors, agents, purchasers, and other firms are made available to U.S. firms through a series of trade lists. *Target Market Trade Lists* are published by country on each *Global Market Survey* theme (see Preface). *Business Firms Trade Lists* cover all commercial establishments in smaller developing countries. *State Trading Organizations Trade Lists* name and describe government-controlled foreign trade organizations in non-market economy countries.

World Traders Data Reports

World Traders Data Reports (WTDRs) provide descriptive background information on specific foreign firms. Prepared by the U.S. Foreign Service, the WTDR's include such information as year of establishment, method of operation, lines handled, size of sales territory, name of chief executive, general reputation in trade and financial circles, names and addresses of credit sources, names of the firm's connections, and other commercial information. The complete name, street and city address of the foreign firm must be given when requesting this service. Nominal fee.

Agent/Distributor Service

The Commerce Department's Agent/Distributor Service helps U.S. firms find agents or distributors for their products in almost every country of the world. U.S. Foreign Service Officers overseas will identify up to three foreign firms that express interest in a specific U.S. proposal. The charge for this service is \$25.

Application forms (DIB-424P) may be obtained from any Commerce Department district office.

Export Mailing List Service

The Export Mailing List Service (EMLS) provides lists of foreign firms considered prospective customers for U.S. firms. Firms are drawn from the automated Foreign Traders Index. Their names and addresses are available on gummed mailing labels or in standard printout form. Printouts also include: Name and title of an officer, type of organization, year of establishment, relative size, number of employees and salespersons, and product and/or service codes (Standard Industrial Classification numbers).

A nominal "set-up" charge also covers the first 300 entries retrieved. Beyond 300, a small additional cost per name is charged. Delivery can be made in about 15 days.

Foreign Traders Index (FTI) Data Tape Service

This service is offered as a convenience to firms that have a continuing need for a broad range of foreign commercial data, such as export management firms selling a wide range of products. This service provides, in magnetic tape form, information on all firms in one or more countries covered in the Foreign Traders Index. Users may thus retrieve various segments of FTI data by running tapes through their own computer facilities. There is a flat fee for this service on a per-country basis for up to 15 countries. A single, fixed charge is made for a package of 15 or more countries or for the entire file.

Overseas Business Opportunities

The overseas business opportunities services described below can be obtained by contacting the U.S. Department of Commerce, Office of Export Development, Overseas Business Opportunities Division, Room 2323, Washington, D.C. or the nearest of the Department's 43 district offices.

Trade Opportunities Program

The Trade Opportunities Program (TOP) receives up-to-date trade leads from U.S. Foreign Service posts around the world daily and disseminates them to U.S. suppliers. Trade opportunities are based on inquiries by overseas companies that wish to purchase American products or services, or who are interested in representing U.S. firms. Trade opportunities may come from private commercial organizations, from foreign governments, or even from multinational organizations such as NATO or the UN.

To register for TOP, U.S. firms are requested to specify their product and country interests and the types of commercial information desired—direct sales representation, and/or foreign government tenders. As leads are developed by the Foreign Service, they are cabled to Washington, where they are matched by computer against the criteria established by U.S. companies. These leads are then mailed to appropriate U.S. firms within a week of their origination overseas. Trade leads are charged against prepaid subscriptions.

Overseas Product Sales Group

The Overseas Product Sales Group (OPS) provides personalized assistance to TOP

subscribers, or to firms identified as having high export capability, in bidding against foreign competitors for specific export sales opportunities with a value of \$1 million or more. The OPS specialists collect, inventory and disseminate early information on export sales opportunities from TOP and a variety of other sources.

Foreign Investment Services Staff

The Foreign Investment Services Staff (FISS) is the focal point for American and foreign business inquiries relating to U.S. investment and licensing abroad. American businessmen are assisted in locating potential overseas licensees and partners, are provided with investment data on specific regions and countries, and then guided toward sources of capital for these proposed

projects. Foreign investment and licensing proposals for which U.S. participation and technology is sought are published regularly in *Commerce America* and are brought to the direct attention of American firms where appropriate. In carrying out its broad range of activities, FISS works closely with other U.S. Government assistance sources, multinational agencies and private regional investment organizations.

Office of Export Administration

Information on U.S. export control may be obtained from the U.S. Department of Commerce, Bureau of East-West Trade, Office of Export Administration, Washington, D.C. 20230. Telephone: (202) 377-4811.

Export Credit Insurance

The Foreign Credit Insurance Association (FCIA) is an association of 53 stock and mutual insurance companies in partnership with the Export-Import Bank of the United States. It offers a comprehensive selection of credit insurance policies which protect policy holders against loss from failure to receive payment from foreign buyers.

The benefits of this coverage may be summed up as follows:

- ♦ It protects the exporter against the failure of the buyer to pay his dollar obligation for commercial or political reasons.
- ♦ It enables the exporter to offer foreign buyers competitive terms of payment.
- ♦ It supports the exporter's prudent penetration of higher risk foreign markets.
- ♦ It gives the exporter greater financial liquidity and flexibility in administering his foreign receivables portfolio.

Who May Be Insured

Virtually any corporation, partnership or individual doing business in the United States is eligible for FCIA coverage. An exporter may apply for a policy for himself or may become insured under the blanket policy of a bank or other financial institution which holds an FCIA policy.

Eligible Products

Foreign sales of all types of industrial, agricultural, and commercial products produced in the United States and of services rendered by U.S.-based personnel are eligible for FCIA insurance.

What Losses are Covered

Comprehensive FCIA policies protect insureds against non-payment of receivables due to unforeseeable commercial and political occurrences. Commercial risks which are covered include insolvency of the buyer or protracted defaults which may well arise from economic deterioration in the buyer's market area, shifts in demands, unanticipated competition, tariffs, or technological changes. Also covered are defaults due to such buyer problems as increasing expenses, the loss of key personnel, and natural disasters.

Political risks coverage applies to defaults due to governmental action and to political disturbances such as war, revolution, and insurrection. Such events may result in confiscation of the buyer's assets, detention or diversion of shipments, or cancellation of necessary licenses by the United States or by the buyer's country. Also covered is the inability or refusal of the foreign central bank involved to convert the buyer's currency to dollars. Political coverage alone is available for exporters who desire to assume their own commercial risks.

The Policies

The policies offered by FCIA are many and varied. They can be tailored to suit the needs of the individual exporters, service groups, and financial institutions. Aside from a small applicant fee, all premiums are paid only for goods actually shipped.

The Master Policy combines a deductible provision, discretionary credit authority, and once-a-year reporting to provide qualified

exporters with lower premiums, independent credit decisions, faster services to overseas buyers, and less paperwork. It is a blanket policy which requires the exporter to insure all or a reasonable spread of his exportation.

The Short-Term Policy is a blanket policy which covers sales on terms of up to 180 days. It provides coverage of 90% for commercial losses and 95% for political losses. A moderate discretionary credit limit is included for each buyer.

The Medium-Term Policy provides 90% coverage (political and commercial) for capital and quasicapital goods sold on terms of 181 days to 5 years. The policy is written on a case-by-case basis so an exporter need not insure all his medium-term transactions as he would under a blanket policy.

The Combination Policy provides short- and medium-term insurance to protect U.S. exporters in transactions with overseas dealers and distributors. It includes flexible coverage for short-term sales and for both inventory and receivable financing.

The Comprehensive Services Policy insures the receivables generated by the performance of services for foreign customers by U.S.-based personnel, or by U.S. personnel temporarily assigned overseas. Industries benefiting from this coverage include management consultants, engineering and related construction consulting services, and transportation companies.

Special Coverage Endorsements are available in addition to the above policies. These include endorsements to cover specified preshipment risks and consignment selling.

An Aid to Financing

FCIA does not finance export sales. However, the exporter who insures his accounts receivable against commercial and political risks is usually able to obtain financing from commercial banks and other lending institutions at lower rates and on more liberal terms than would otherwise be possible.

Prequalification of Buyers

FCIA's rapidly expanding prequalifying (P.Q.) program is now providing credit information on overseas buyers through its computerization data system. All the exporter needs to do is telephone

the nearest FCIA office to determine whether a particular buyer is prequalified for the amount of his purchase.

Information about FCIA

More information about FCIA's services, and applications for policies, may be obtained through insurance agents or brokers or through FCIA's network of full-service regional offices. General questions and specific inquiries may be directed toward the FCIA Ombudsman in the New York office. Call (212) 432-6216 for a direct connection.

FCIA Offices

One World Trade Center—9th Floor
New York, New York 10048
Phone: (212) 432-6200

1250 South OmniInternational
Atlanta, Georgia 30303

Suite 1552
10 South Riverside Plaza
Chicago, Illinois 60606

Suite 1300
55 Public Square
Cleveland, Ohio 44113

Suite 1790
611 West Sixth Street
Los Angeles, California 90017

Suite 1110—First Federal Bldg.
700 North Water Street
Milwaukee, Wisconsin 53202

C&I Building—Suite 1408
1006 Main Street
Houston, Texas 77002

Suite 205
1 Embarcadero Center
San Francisco, California 94111

Woodward Building, Suite 420
15th & H Streets, N.W.
Washington, D.C. 20005

Financing Export Sales

The Export-Import Bank of the United States (Eximbank) is an independent agency of the U.S. Government which works directly with American suppliers and private financial institutions to finance U.S. export sales. Eximbank has numerous

financing programs to assist U.S. firms. These include direct loans, bank guarantees, discount loans to commercial banks, leasing guarantees, and other programs to cover overseas design and engineering studies.

Financing packages for major industrial projects and exports of high value products are normally supported under Participation Financing, a combination of the Direct Loan and Financial Guarantee programs.

Direct Loans are dollar credits extended by Eximbank to borrowers outside the United States for purchases of U.S. goods and services. Disbursements under the loan agreement are made in the United States to the suppliers of the goods and services, and the loans, plus interest, are repaid in dollars by the borrowers.

Eximbank will extend its Financial Guarantee to cover loans made by U.S. financial institutions to foreign government or private purchasers of U.S. goods and services. The Financial Guarantee will unconditionally guarantee repayment by a borrower of up to 100% of the outstanding principal due on such loans plus interest equal to the U.S. Treasury rate for similar maturities, plus 1% per annum on the outstanding balances of the loan. Comparable guarantees are available to non-U.S. financial institutions under somewhat different terms.

Of particular importance to U.S. businessmen is Eximbank's Cooperative Financing Facility program which supports medium-term financing in all major markets. Eligible overseas banks are extended a line of credit for half of the funds needed for each transaction, presently at 8% interest, and the cooperating banks provide the other half at local market rates. These banks make credit judgments regarding the customer and can consummate transactions with a minimum of difficulty. Eximbank currently has established approximately 300 such working arrangements

with foreign financial institutions (private and public) in over 100 countries.

Eximbank's Commercial Bank Exporter Guarantee program, another activity of special interest to exporters, provides guarantees covering the credit and political risks of non-payment of medium-term (181 days to 5 years) export debt obligations purchased by U.S. banking institutions on a non-recourse basis from the exporters. The fee charged for Eximbank's guarantee depends upon (1) the classification accorded the country of import, (2) the length of the repayment terms, and (3) the financial condition of the overseas buyer.

As a general rule, all transactions supported by Eximbank must include a minimum 10% cash payment by the buyer and must have reasonable assurance of repayment.

The Bank is directed by statute to supplement and encourage private capital, not compete with it. Selected product lines and services to designated markets are excluded from the agency's support; however, the overwhelming majority of U.S. export products and markets are covered. Details on the exceptions are available from U.S. commercial banks or directly from Eximbank.

Businessmen are specifically invited to utilize Eximbank's counseling services for exporters, banks and financial institutions seeking financing for U.S. exports. The services include information on the availability of financing within the United States and abroad, as well as on each of the pertinent Eximbank programs.

For additional information, contact the Export-Import Bank of the United States, 811 Vermont Avenue, N.W., Washington, D.C. 20571, or Telex 89-461.

Overseas Investment Insurance and Finance

In keeping with the objectives set forth by Congress, the Overseas Private Investment Corporation (OPIC) is fostering economic progress and development through private enterprise in some 80 friendly lesser developed countries in Africa, Latin America, Asia, and Eastern Europe. It does this by providing qualified U.S. investors—large and small—with political risk insurance and financial assistance to support their investments in these countries.

OPIC insurance and financing are extended to new projects or the expansion of existing projects which are financially sound. All projects OPIC supports must assist in the social and economic development of the host country, and must be consistent with the economic interests of the United States.

Insurance Services

OPIC's insurance program provides coverage, in the countries indicated herein, against:

- ♦ inconvertibility of local currency earnings
- ♦ expropriation
- ♦ war, revolution and insurrection

To the private investor interested in establishing operations in the developing nations, political risk insurance is often an essential element in the decision to make a commitment overseas because, although he has the capability to assess the practical business considerations involved, he may find it difficult to judge the country's long-range political climate. OPIC's typical insurance

coverage is available for up to 20 years at a combined annual premium of 1.5% for all three coverages. Today, nearly two-thirds of U.S. (non-petroleum) private investment in the less developed countries is insured by OPIC.

Finance Services

The major objective of the finance program is to assist U.S. lenders and business enterprises in searching out and financing worthwhile private sector projects in the developing world. The three principal means for accomplishing this are OPIC's

investment guaranties, its direct loans, and its pre-investment assistance program.

The investment guaranty program protects U.S. leaders against loss from commercial and political risks by providing for repayment of principal and interest on loans made to projects in which a U.S. company has a major financial and managerial commitment. The direct investment fund offers long-term direct dollar loans at commercial interest rates to viable projects involved in manufacturing, processing, services, and agribusiness. Guaranties are available for mining and other natural resource projects. The pre-investment survey program is designed to assist investors on a risk-sharing basis in finding viable projects in the developing nations.





Commerce District Offices

Albuquerque, 87101, (505) 766-2386.
Anchorage, 99501, (907) 265-5307.
Atlanta, 30309, (404) 526-6000.
Baltimore, 21202, (301) 962-3560.
Birmingham, Ala., 35205, (205) 254-1331.
Boston, 02116, (617) 223-2312.
Buffalo, N.Y., 14202, (716) 842-3208.
Charleston, W.Va., 25301, (304) 343-6181, Ext. 375.
Cheyenne, 82001, (307) 778-2151.
Chicago, 60603, (312) 353-4450.
Cincinnati, 45202, (513) 684-2944.
Cleveland, 44114, (216) 522-4750.
Columbia, S.C., 29204, (803) 765-5345.
Dallas, 75202, (214) 749-1515.
Denver, 80202, (303) 837-3246.
Des Moines, 50309, (515) 284-4222.
Detroit, 48226, (313) 226-3650.
Greensboro, N.C., 37402, (919) 275-9111, Ext 345.
Hartford, 06103, (203) 244-3530.
Honolulu, 96813, (808) 546-8694.
Houston, 77002, (713) 226-4231.
Indianapolis, 46204, (317) 269-6214.
Los Angeles, 90024, (213) 824-7591.
Memphis, 38103, (901) 534-3213.
Miami, 33130, (305) 350-5267.
Milwaukee, 53202, (414) 224-3473.
Minneapolis, 55401, (612) 725-2133.
New Orleans, 70130, (504) 589-6546.
New York, 10007, (212) 264-0634.
Newark, N.J., 07102, (201) 645-6214.
Omaha, 68102, (402) 221-3665.
Philadelphia, 19106, (215) 597-2850.
Phoenix, 85004, (602) 261-3285.
Pittsburgh, 15222, (412) 644-2850.
Portland, Ore., 97205, (503) 221-3001.
Reno, 89502, (702) 784-5203.
Richmond, Va., 23240, (804) 782-2246.
St. Louis, 63105, (314) 425-3302.
Salt Lake City, 84138, (801) 524-5116.
San Francisco, 94102, (415) 556-5860.
San Juan, P.R., 00902, (809) 723-4640.
Savannah, 31402, (912) 232-4204.
Seattle, 98109, (206) 442-5615.

Country Marketing Managers

Commercial and economic information on most trading partners of the United States is available from the Bureau of International Commerce, U.S. Department of Commerce.

The Bureau is organized geographically with a Country Marketing Manager responsible for a country or group of countries as listed below. Assistance or information about marketing in these countries may be obtained by dialing these key people directly: **202-377** plus the given extension.

Area	Extension
<i>Africa</i>	
West and Central Africa	3865
East and South Africa	4927
<i>Europe</i>	
France and Benelux Countries	4504
Germany and Austria	5228
Italy, Greece and Turkey	3944
Nordic countries	3848
Spain, Portugal, Switzerland and Yugoslavia	2795
United Kingdom and Canada	4421
<i>Far East</i>	
Australia and New Zealand	3646
East and South Asia	5401
Japan	2425
Southeast Asia	2522
<i>Latin America</i>	
Brazil, Argentina, Paraguay and Uruguay	5427
Mexico, Central America, and Panama	2314
Remainder of South America and Caribbean countries	2995
Special units within the Department of Commerce have been created to deal with particular marketing situations:	
Commerce Action Group for the Near East	
<i>North Africa</i>	5737
<i>Near East</i>	
Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Peoples Democratic Republic of Yemen, Qatar, Saudi Arabia, Syria, United Arab Emirates, Yemen Arab Republic	5767
Iran, Israel, Egypt	3752
Bureau of East-West Trade	
Eastern Europe	2645
USSR	4655
Peoples Republic of China	3583

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